4 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter analyzes the environmental effects that are projected to occur as a result of implementing land management actions described for each alternative. The baseline used for projected effects is the current condition described in Chapter 3 (Affected Environment). The analysis for each alternative is presented by resource and organized into five sections:

Goals and Objectives

The goals and objectives defined in Chapter 2 are restated for each resource for ease of reference purposes.

Assumptions

Specific assumptions pertinent to the management and analysis of effects for each resource are listed for that resource.

Analysis of Alternatives

This is a description of the possible effects from the proposed management actions. The effect or change is compared to the current management situation, Alternative A. For ease of reading, the analysis shown in the various alternatives may be referenced in following alternative effect discussions; for example, Alternative A may be referenced in following alternative analyses with such statements as, "...effects would be the same as Alternative A...," or "... effects would be the same as Alternative A, except for ....," as applicable.

The Analysis of Alternatives includes a discussion of the Effects Common to All Alternatives, where applicable, prior to the separate alternative analyses. In addition, the effects discussions are split into Direct and Indirect Effects. The Direct Effects section discusses the results of implementing the management actions specified for a given resource on that resource. The Indirect Effects section discusses the effects that may result from the implementation of other resource management activities. For example, an indirect effect to vegetation may result from management actions proposed for fire management.

Summary of Effects

At the end of each resource section is a summary comparison of the effects of implementing the various alternatives and a discussion of how well each meets the stated objectives.

Cumulative Effects

The final section under each resource discussion is a description of the cumulative effects of the past, present and reasonably foreseeable future actions for each alternative. This section also considers effects of other agency actions as well as actions on private land within or adjacent to the Planning Area.

4.1.1 Assumptions

Several general assumptions were made to facilitate the analysis of potential effects. The assumptions listed below are common to all resources. Other assumptions specific to a particular resource are listed under that resource.

- Changes in BLM policies have been made since the current land use plans were approved. This includes the Steens Act, the S&Gs, and other acts and plans listed in Section 1.3 (Existing Management Plans).
- All alternatives would maintain the vegetation resource and meet needs for water, nutrient, and energy cycling.
- Funding and personnel would be sufficient to implement any alternative described and would be the same across all alternatives.
- Monitoring studies would be completed as indicated, and adjustments or revisions would be made as described in the various resource sections and in the Chapter 2 Adaptive Management and RMP Monitoring Sections.
- The approved RMP would remain in effect for 15 to 20 years.

4.1.2 Critical Elements of the Human Environment

The following are critical elements of the human environment addressed in Chapter 3 and 4, subject to requirements specified in statutes, regulations or Executive Orders: air quality; ACECs; cultural/paleontological resources; energy; invasive nonnative species (Noxious Weeds); Native American religious concerns (Native American Traditional Practices); threatened, endangered, candidate, and special status species (Special Status Species); water quality (Water Resources); wetlands/riparian zones; WSRs; and wilderness and WSAs. The alternatives call for varying degrees of resource use and protection. As a result, there are varying degrees or forms of protective management or mitigation for each of these resources or land use allocations. These critical elements would also be considered, as appropriate, in site-specific project NEPA analysis, design, and implementation. Certain critical elements of the human environment were either not present within the Planning Area or else the discussion under the previous chapters have eliminated them from further consideration. These include environmental justice, prime or unique farmlands, floodplains, and hazardous or solid wastes.

4.2 Air Quality

4.2.1 Goals and Objectives

Goal 1 - Maintain, restore, or protect air resources to support public health, visibility, and regional haze standards and goals.

Objective 1. Manage wildland fires to avoid degradation of the airshed.

Objective 2. Manage mining and aggregate operations to avoid degradation of the airshed.

4.2.2 Assumptions

Land managers and the public must make choices regarding prescribed fire and wildland fire use emissions versus emissions from wildland fires. Land managers have little control over where, when, and how much smoke would be generated during wildland fires. Through prescribed fire, smoke levels can be better managed. For example, air quality may be diminished in the short term so that during wildfire events the probability of violating air quality standards in the long term would be decreased. Although some of the alternatives call for a substantial increase in emissions from prescribed fire and wildland fire use, the effects of these emissions would be mitigated to provide for public health and safety. In addition, land managers must contend with the transport of emissions from areas outside of their jurisdiction. These transported emissions affect the ability of land managers to effectively manage air quality issues through implementation of their management actions.

The following assumptions were used in the analysis of effects for air quality: 1) The national ambient air quality standards and Oregon Smoke Management Plan would not become more stringent. 2) The amount of particulate matter and direction of smoke dispersion can be managed in prescribed fire, but not in wildland fire.

4.2.3 Analysis of Alternatives

4.2.3.1 Alternative A

Direct Effects

The current activities result in a potential to emit between 350 and 700 tons of particulates per year over the life of the RMP from wildland fires. An additional amount of particulates would be emitted from prescribed fires. Emissions from mining operations would occur in an amount that would be proportional to the number of operations.

Indirect Effects

Woodlands and Rangelands. These areas would continue to be managed using mechanical vegetation removal as a method to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from the vegetation removal, and combustion emissions from the equipment used to remove the vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed.

Energy and Minerals. These resources would be managed to allow continued development of saleable, leasable, and locatable mineral and energy resources, as well as wind energy. These projects would result in dust and gaseous emissions from a variety of sources, including dust from construction, mining, and processing operations, and gaseous emissions from fuel combustion. These emissions would have an effect on air quality.

Wildland Fire Management. Natural and human-caused fire would be used to achieve the goals and objectives. As discussed above, these fires would continue to affect air quality.

Transportation and Roads. Transportation would be managed to allow continued current and existing uses on roads and ways in the Planning Area. Use of these roads by motorized vehicles would result in continued gaseous emissions from fuel combustion. These emissions would affect air quality.

4.2.3.2 Alternative B

Direct Effects

Emissions from mining operations would not occur under this alternative. Emissions from prescribed fires would be less than Alternative A, because they would be used to a limited degree. Emissions from wildland fires would likely be somewhat greater than under Alternative A.

Indirect Effects

Riparian and Wetlands. Riparian and wetlands would be managed to eliminate roads in the vicinity of these resources. As a result, fugitive dust emissions in the vicinity of these resources would be reduced, thereby having an effect on air quality.

Woodlands. Woodlands would be managed using natural fires for vegetation removal as a method to achieve the identified goals and objectives. These activities would result in combustion emissions, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation burned.

Wildland Juniper Management Area. The WJMA would be managed using mechanical vegetation removal and fire as methods to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from vegetation removal; combustion emissions from equipment used to remove the vegetation; and fires for disposal of removed vegetation, all of which would affect air quality. These emissions would be directly proportional to the amount of vegetation removed or burned.

Wildland Fire Management. Natural and human-caused fire would be used to achieve the goals and objectives. As discussed above, these fires would continue to affect air quality.

Transportation and Roads. Transportation would be managed with road closures and to allow uses on most of the existing roads and ways in the Planning Area. Use of these roads by motorized vehicles would result in gaseous emissions from fuel combustion. These emissions would affect air quality.

4.2.3.3 Alternative C

Direct Effects

Emissions from prescribed and wildland fires would likely be greater than under Alternative A, because the management objectives would not be limited. Emissions from mining operations would not occur under this alternative.

Indirect Effects

Woodlands and the Wildland Juniper Management Area. These areas would be managed using mechanical vegetation removal and fire as methods to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from vegetation removal; combustion emissions from the equipment used to remove the vegetation; and fires for disposal of removed vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed and burned.

Rangelands. Rangeland would be managed using mechanical vegetation removal as a method to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from vegetation removal and combustion emissions from the equipment used to remove the vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed.

Energy and Minerals. These resources would be managed to allow development of saleable, leasable, and locatable mineral and energy resources, as well as wind energy. These projects would result in dust and gaseous emissions from a variety of sources, including dust from construction, mining, and processing operations, and gaseous emissions from fuel combustion. These emissions would have an effect on air quality.

Wildland Fire Management. Natural and human-caused fire would be used to achieve the goals and objectives. As discussed above, these fires would continue to affect air quality.

Transportation and Roads. Transportation would be managed with road closures and to allow uses on most of the existing roads and ways in the Planning Area. Use of these roads by motorized vehicles would result in gaseous emissions from fuel combustion. These emissions would affect air quality.

4.2.3.4 Alternative D

Direct Effects

Emissions from prescribed and wildland fires would likely be somewhat greater than under Alternative A, because the management objectives would not be limited. Ideally, a limited amount would be burned, but this would enable landscape-scale objectives to be achieved in years when opportunities would be available. Emissions from mining operations would occur in an amount proportional to the number of operations.

Indirect Effects

Woodlands and the Wildland Juniper Management Area. These areas would be managed using mechanical vegetation removal and fire as methods to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from the vegetation removal; combustion emissions from the equipment used to remove the vegetation; and fires for disposal of removed vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed and burned.

Rangelands. These areas would be managed using mechanical vegetation removal as a method to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from the vegetation removal, and combustion emissions from the equipment used to remove the vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed.

Energy and Minerals. These resources would be managed to allow development of saleable, leasable and locatable mineral and energy resources, as well as wind energy. These projects would result in dust and gaseous emissions from a variety of sources, including dust from construction, mining, and processing operations, and gaseous emissions from fuel combustion. These emissions would have an effect on air quality.

Wildland Fire Management. Natural and human-caused fire would be used to achieve the goals and objectives. As discussed above, these fires would continue to affect air quality.

Transportation and Roads. Transportation would be managed with road closures and to allow uses on most of the existing roads and ways in the Planning Area. Use of these roads by motorized vehicles would result in gaseous emissions from fuel combustion. These emissions would affect air quality.

4.2.3.5 Alternative E

Direct Effects

Emissions from prescribed and wildland fires would likely be somewhat greater than under Alternative A, because the management objectives would be limited. Emissions from mining operations would occur in an amount that would be proportional to the number of operations.

Indirect Effects

Woodlands and the Wildland Juniper Management Area. These areas would be managed using mechanical vegetation removal and fire as methods to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from vegetation removal; combustion emissions from the equipment used to remove the vegetation; and fires for disposal of the removed vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed and burned.

Rangelands. Rangeland would be managed using mechanical vegetation removal as a method to achieve the identified goals and objectives. These activities would result in fugitive dust emissions from vegetation removal, and combustion emissions from the equipment used to remove the vegetation, which would then affect air quality. These emissions would be directly proportional to the amount of vegetation removed.

Energy and Minerals. These resources would be managed to allow development of saleable, leasable, and locatable mineral and energy resources, as well as wind energy. These projects would result in dust and gaseous emissions from a variety of sources, including dust from construction, mining, and processing operations, and gaseous emissions from fuel combustion. These emissions would have an effect on air quality.

Wildland Fire Management. Natural and human-caused fire would be used to achieve the goals and objectives. As discussed above, these fires would continue to affect air quality.

Transportation and Roads. Transportation would be managed with road closures and to allow uses on most of the existing roads and ways in the Planning Areas. Use of these roads by motorized vehicles would result in gaseous emissions from fuel combustion. These emissions would affect air quality.

4.2.4 Summary of Effects

The alternatives have the potential to emit varying amounts of particulate matter into the atmosphere over the life of the RMP. The air quality goal should be met because of the ability to manage emissions in prescribed fire. Since wildland fire would be a random event, the alternatives encompassing large amounts of particulate emissions have the potential to exceed the stated management goal for air quality. Due to the relative isolation of the area and the predominate wind patterns for smoke dispersion, the probability would be low that the airshed would be degraded. Alternatives C through E would all likely have greater effects than Alternative A. Alternative B would likely have the least potential effects. Alternative C would likely have the greatest potential effects.

4.2.5 Cumulative Effects

Smoke from prescribed or wildland fires burning simultaneously on adjacent BLM Districts (Lakeview District, Prineville District, Vale District and Winnemucca Field Office), and on private lands and state lands, would affect the air quality of southeastern Oregon. Prevailing winds in the area are south and southwesterly. As a result, multiple fires could degrade the air quality in the Planning Area. It would not likely that several prescribed fires would occur at the same time since burn plans would be coordinated with other BLM, USFS, and ODF offices. However, large wildland fires or escaped prescribed fires could occur in a number of areas at one time, resulting in air quality degradation for a short period of time.

4.3 Water Resources

4.3.1 Goals and Objectives

Goal 1 - Maintain, restore, or improve water quality and quantity to sustain the designated beneficial uses on public lands.

Objective 1. Comply with state and federal requirements to protect public waters.

Objective 2. Protect all designated beneficial uses by preventing or limiting nonpoint source pollution; maintain or improve existing water quality and quantity though implementation of BMPs.

Objective 3. Manage impaired waters on public lands listed under Section 303(d) of the CWA to restore beneficial uses and improve water quality so listing would no longer warranted.

4.3.2 Assumptions

Water quality and quantity would be dependent on the condition of resources throughout the watershed, including soils, upland vegetation, and especially riparian vegetation. Therefore, management actions that affect the condition of these resources may influence water quality and quantity. Water quantity would be primarily influenced by watershed functions (e.g., capture, storage and beneficial release of precipitation). This would be achieved through vegetation management, particularly in riparian areas where floodplains have the capacity to store water. Nonpoint source pollution, such as elevated water temperature and sediment input, would be the primary water quality issue regarding public lands management. Water quality would be managed to comply with CWA requirements under all management alternative themes. Several management actions in the sections describing environmental effects on water resources, particularly under riparian vegetation, would be specifically intended to maintain or restore water quality.

BMPs are recognized as the best way to maintain and restore water quality and quantity. BMPs range from specific practices designed to protect water quality at individual sites (such as installation of silt fences during road crossing maintenance) to management actions designed to reduce potential water quality effects due to recreation, grazing, or other activities. BMPs such as water developments (e.g., reservoirs and spring developments) can function for multiple beneficial uses. These types of actions directly provide additional and alternative water sources for wildlife and livestock, and indirectly decrease use of, and effects to, riparian vegetation. Reservoirs further function to detain runoff and increase infiltration, as well as trap potential sediment associated with overland flow. The effectiveness of BMPs relies on using appropriate measures, adequate implementation, and monitoring of both implementation and effectiveness. Where management prescriptions call for BMPs to protect or restore water quality, it would be assumed that BMPs would be selected and implemented appropriately; monitoring of BMP implementation and effectiveness would be conducted; and monitoring data would be used in an adaptive management framework to provide that BMPs would be reasonably effective. Implementation and effectiveness of BMPs should incorporate the physical progression of stream channel adjustment and ecological progression of growth and expansion of vegetation in monitoring and evaluation.

WQRPs and associated BMPs would be developed and implemented to support Water Quality Management Plans and TMDLs developed by the DEQ for water quality limited streams, lakes, or other bodies of water identified pursuant to the CWA, section 303(d) in the Planning Area. The WQRPs would serve as the mechanism for defining project specific BMPs and outlining implementation and effectiveness monitoring for waters identified as not meeting state water quality standards.

Portions of many water bodies throughout the Planning Area would not be managed by the BLM. In these situations, BLM management actions alone may not be sufficient to restore water quality. To restore water quality, it would be assumed that in mixed ownership watersheds, BLM WQRPs would be part of Water Quality Management Plans developed by the DEQ in coordination with the ODA and surrounding landowners.

4.3.3 Analysis of Alternatives

4.3.3.1 Effects Common to All Alternatives

Direct Effects

BMPs would be prescribed and implemented at the activity plan level to reasonably prevent degradation of water quality. Management actions that could affect water quality and quantity include site-specific or broad-scale projects that occur near water bodies associated with rangeland, grazing, recreation, transportation, minerals, and wildland fire management. The specific BMPs used in each instance would be selected during development of activity plans. For example, silt fences or other soil containment structures may be used to control sediment movement into water during construction or maintenance projects. In the case of allotment or recreation management plans, BMPs would include management actions designed to maintain or restore water quality and quantity. Grazing management might include modification of season or place of use and/or development of off-channel water to restore actively eroding banks, thereby limiting sediment introduced to the stream. The application of BMPs in this fashion should reduce direct alteration of stream channels and the amount of sediment entering the water. These BMPs should also increase stream shading through maintenance or restoration of riparian vegetation, and improve the function of floodplain processes, such as floodwater retention and ground water storage. In some locations, disturbance to riparian vegetation or to stream channels may occur at localized scales to promote the large-scale maintenance or improvement of riparian vegetation, bank stability, and water quality through implementation of BMPs such as livestock or wild horse water gaps or designated camping areas. BMPs would also be directed toward management practices to facilitate maintenance or improvement of attributes

identified through PFC assessment, such as channel geometry or vegetation characteristics. BMPs designed to reduce channel width-to-depth ratios by stabilizing streambanks and increasing riparian vegetation, would tend to increase shade and reduce stream temperature. Increases in the density and distribution of riparian vegetation would stabilize streambanks, shorelines, and floodplains, reducing erosion and the amount of sediment reaching water bodies.

Waters identified on the 303(d) list would be evaluated to validate impairment or improvement following the listing, and for those water bodies where required, WQRPs or other sufficiently stringent measures would be developed to restore water quality. These management actions would remove impaired waters from the 303(d) list, and would improve water quality and restore beneficial uses in these watersheds.

Indirect Effects

Riparian and Wetlands. Prescriptions at the activity plan level would be implemented or continued to manage riparian/wetland vegetation to maintain or progress toward PFC. While vegetation communities in PFC would not be necessarily at site potential or ecological potential, PFC represents a condition where potential erosion and sediment production would be reduced, and establishes a base condition to implement actions relative to specific values such as water quality and quantity. In streams not currently at PFC, management directed to maintain or progress toward PFC would increase the density and coverage of riparian vegetation, which would stabilize streambanks and floodplains, reducing erosion and sediment delivery to water bodies. Increased density of riparian vegetation may also result in greater canopy cover and may narrow stream channels, buffering stream temperature. In streams currently at PFC, this management action would provide for maintenance of PFC and associated water quality conditions.

BMPs would be prescribed and implemented at the activity plan level to maintain, restore, or improve floodplain function and process across all alternatives. Functioning floodplains filter in-channel or upland generated sediment during runoff events, and store ground water during wet periods and release it to adjacent streams during drier months. BMPs designed to maintain or restore floodplain function would decrease stream sediment input and potentially increase summer stream flow. Flow contributions from adjacent riparian and floodplain areas would contribute to reduced stream temperature.

Establishment and maintenance of local riparian vegetation in a nursery-type facility would contribute to riparian restoration efforts to maintain or restore water quality through increased shading and bank stability.

Noxious Weeds. Noxious weed prevention and control would continue to be a priority in all alternatives. Noxious weeds invade native plant communities, including riparian vegetation, resulting in degraded plant community structure, cover, composition, and diversity. Erosion and runoff both tend to increase as a result. Reduced cover may also result in reduced shade and increased water temperature. The priority on noxious weed prevention and control would reduce these effects on water resources.

Effects to water quality and associated beneficial uses through the potential introduction of chemicals into water would assumed to be minimized or avoided through appropriate application techniques according to label restrictions and BLM guidance.

Fish and Wildlife. As noted in Chapter 2, aquatic habitat values would be the products of the attributes and processes of properly functioning riparian and aquatic systems at a desired ecological status. Therefore, the maintenance, restoration, or improvement of riparian and aquatic habitat to support fish and wildlife would be primarily addressed in the alternatives identified under Water Resources, Vegetation, and Special Status Species. The broad objective under Fish and Wildlife to maintain, restore, or improve habitat, generally promotes water quality maintenance, improvement or restoration.

Grazing Management. In areas where grazing would be determined to be contributing to nonattainment of water resource objectives, changes in management would be implemented. These changes in management would be designed to reasonably prevent nonpoint source pollution and contribute to maintenance or restoration of water quality, such as increases in riparian and upland vegetation density and structure, reduced erosion, increased streambank stability, and increased stream shade. However, the effects of livestock grazing such as soil compaction, soil disturbance, and streambank destabilization, with corresponding sediment input, may continue pending project-specific objective development and management implementation through allotment evaluation and management planning. The effects may also continue after implementation due to a lag in recovery processes such as channel adjustment and riparian vegetation establishment.

Areas burned by wildland or prescribed fire would be rested for a minimum of two growing seasons, and until monitoring data support resumption of grazing. This would allow vegetation to increase in density, and would reduce erosion and sediment delivery to water bodies.

Wildland Fire Management. Fire suppression actions may result in initial effects to water quality in the form of increased sediment delivery associated with constructed fire breaks, water dipping or pumping, and overland travel. However, suppression actions may not increase sediment delivery over the effects of the fire itself, such as reduced vegetation cover and increased erosion potential. The limitation of fire extent through suppression activities likely reduces the total potential sediment produced during a single fire event. All burned areas would be evaluated for rehabilitation. Rehabilitation activities may result in initial increases in erosion and soil compaction, thereby increasing sediment and runoff delivered to stream channels, although these activities may not increase sediment delivery over the effects of the fire itself. Over longer timeframes, revegetation would progress more quickly in rehabilitated areas, reducing the amount of sediment produced. Also, the potential effects of rehabilitation activities could be reduced through application of BMPs.

An FMP would be developed to identify areas that possess significant natural resource values. Fire management strategies based on protecting natural resource values would assist in protecting water quality.

Transportation and Roads. Current BLM mapping does not include all routes within the CMPA. Unmapped routes would be inventoried, and an EA would be conducted to determine their disposition. Water quality effects would be addressed through site-specific analysis in the EA.

BMPs would be used for the construction, maintenance, and general management of the transportation system (Appendix F). Properly implemented and monitored, these BMPs reduce erosion, alteration of surface water flow paths, disturbance to riparian vegetation, and alteration of stream channels. Use of BMPs would reduce potential sediment and runoff delivered to water bodies.

Wilderness Study Areas. Under the WSA IMP, some constraints may be placed on watershed rehabilitation and vegetative manipulation of noxious weeds and exotic plants (e.g., cheatgrass) to protect wilderness values. Only aerial or hand seeding of native species may be allowed to restore natural vegetation, and land treatments (e.g. trenching, ripping, terracing, plowing) would not be permitted on lands under wilderness review. Although use of nonnative vegetation would not be expressly prohibited, it would be generally implied. If interpretation of the WSA IMP precludes the use of nonnative vegetation in site preparation for the establishment of native vegetation, or effective mechanical seedbed preparation and seeding techniques to restore riparian and/or adjacent upland vegetation communities (Riparian and Wetlands: 2.5.2.1.2; Alternatives C, D, and E), the Water Resources goal and objectives may not be achieved in the affected areas.

4.3.3.2 Alternative A

Direct Effects

Water resources would continue to be maintained or restored through management of riparian and adjacent uplands based on site or reach management objectives. Management would be modified, where necessary, through WQRP prescriptions and associated activity plans. These actions would be designed to increase bank stability and thermal buffering by increasing riparian vegetation density and distribution. Water quality improvements would be expected as WQRPs would be developed and implemented, and riparian vegetation would be restored and erosion reduced. Nonattainment of water temperature standards in current and potential future 303(d) listed water, as well as potential future listings associated to other water quality constituents, may continue due to lag between the implementation of restoration actions and recovery of riparian vegetation and stream channels.

Indirect Effects

Soils and Biological Soil Crusts. BMPs would be implemented to protect and manage soil for all ground-disturbing activities. This would reduce surface erosion and sediment introduction to stream water bodies. Also, compaction of soils would be reduced, maintaining infiltration capacity of existing soils, preventing erosion due to increased overland runoff, and maintaining the ability of soils to store water that can be released to streams at low flow periods.

Riparian and Wetlands. Existing grazing, recreation and transportation systems and improvements to maintain PFC would continue. Outside of areas affected by WQRPs or other special planning requirements (e.g., WSRs), riparian/wetland areas would not necessarily be managed to attain an advanced ecological status, although in many areas management to maintain or promote PFC may also promote an advanced ecological status. Sources of localized tree and shrub source material for restoration would continue to be established and maintained. These sources would assist in restoring riparian vegetation and subsequently decrease potential sediment and solar input to water bodies.

Roads located outside the CMPA and associated Transportation Plan, within or affecting riparian areas, would be maintained and developed in conformance with existing laws and regulations. Although BMPs would be applied to minimize or eliminate the effects of roads on water quality, the development and management of roads would be based on all resource management objectives. The potential effects of roads on water resources, including erosion and reduction of riparian vegetation density and coverage, would be addressed on a case-by-case basis.

Beaver populations would be allowed to expand naturally under this alternative. Beaver expansion into riparian and wetland areas without sustainable levels of riparian vegetation could result in reduced bank stability and shade, and subsequent increased sediment input and water temperature. Abandoned beaver dams could wash out, reduce channel stability, and increase sediment load. Beaver expansion into riparian communities with sustainable levels of riparian vegetation could result in riparian vegetation expansion and increased in-channel and streambank water storage that would moderate summer stream temperatures and trap sediment.

Woodlands. Mechanical removal and prescribed fire treatments to reduce the presence and influence of western juniper on upland and riparian plant communities could result in short-term effects to water quality in the form of increased sediment delivery to stream channels associated with surface runoff. However, because the invasion of juniper has resulted in the loss of ground cover and increased erosion, juniper treatment would not be likely to increase sediment production over existing conditions. The potential to affect increases with proximity to water and increased topography. Application of BMPs based on site-specific analysis would minimize or mitigate potential short-term sediment input. Reduced western juniper canopy cover would be expected to reduce interception and sublimation of precipitation, increase vegetative ground cover, reduce sediment input, and subsequently increase water infiltration and other watershed functions in upland areas. Reducing competition from juniper in riparian/wetland areas would facilitate passive and active restoration efforts to maintain or improve the density of riparian vegetation, contributing to decreased sediment input and increased thermal buffering along streams. The anticipated long-term effects of juniper treatment at a landscape level would be increased infiltration, reduced runoff, reduced erosion, moderation of peak stream discharge, and increased summer stream flows.

Rangelands. The ecological status of native plant communities would be maintained or improved. Plant density and coverage in these communities would be maintained or increased, resulting in decreased erosion and potential sediment delivery to water bodies.

Prescribed fire would be used to promote ecologically desirable traits in the range plant community. Over short timeframes (one to two years), prescribed fire may result in increased erosion potential due to loss of vegetative cover, and may result in increased runoff. However, these effects may be mitigated by applying appropriate BMPs during prescribed burns, and restoration of burned areas. Long-term effects of this practice on water resources could include increased watershed function. The vegetation goals of prescribed fires, which include reduced dominance of woody vegetation and release of desirable plants, would result in increased ground cover and increased infiltration of precipitation. This would reduce sedimentation into water bodies and potentially increase stream flow during the summer.

The mechanical removal of woody vegetation to create a mosaic of successional stages in range vegetation would result in some soil disturbance and compaction over short timeframes, potentially resulting in localized increased erosion and runoff. These effects could be mitigated by applying appropriate BMPs, and restoration or rehabilitation of treated areas. Long-term effects of this practice would be reduced dominance of woody vegetation and release of desirable plants, which would result in increased ground cover and increased infiltration of runoff. This would reduce sedimentation in water bodies and potentially increase stream flow during the summer.

Special Status Species. Goals and objectives for the management of riparian- dependent and aquatic special status species promote the objectives for water quality. The management of special status species habitat for conservation and/or recovery would have water resource effects in water bodies where redband trout or other special status animals would be found, as habitat conservation or improvement would include vegetation management to buffer stream temperatures and reduce erosion.

Energy and Minerals. Current management of locatable mineral entry would continue. Locatable mineral development could occur in some locations within the Planning Area where not restricted by other regulations. Depending on the size, nature, and location of the development, effects on water resources could include increased erosion due to road development and vegetation disturbance, water pollution from toxic or deleterious substances, or disruption of ground water hydrology through mine development. However, special stipulations would be identified through NEPA review for a mining Plan of Operations and by ID team review for a mineral exploration Notice that would partially or fully mitigate these effects.

Leasing and development of oil and gas, geothermal, and solid leasable mineral resources would continue under the current management framework. NSO or other seasonal or special stipulations would be applied and identified by an ID team immediately prior to leasing. Depending on the size, nature, and location of the development, effects on water resources could include increased erosion due to road development or vegetation disturbance, water pollution from toxic or deleterious substances, or disruption of ground water hydrology through well or mine development. Special stipulations developed through NEPA review would partially or fully mitigate these effects.

Saleable minerals development would be permitted under this alternative on a case-by-case basis. Depending on the size, nature, and location of the development, effects on water resources could include increased erosion due to road development or vegetation disturbance, or disruption of ground water hydrology through well or mine development.

Renewable energy authorization would be managed under current planning framework, with no exclusion or avoidance areas except where current law or regulations require. Water quality effects from renewable energy development would likely be limited due to the nature and location of this development. However, erosion from road development or vegetation disturbance could occur.

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Decreases in forage availability, such as extensive wildfire and/or drought, and reduced water availability due to drought could increase wild horse concentration and use in riparian areas associated with perennial or more persistent water sources. Increased concentration could result in bank disturbance through trampling, and reduced riparian vegetation cover and corresponding increased sediment input and reduced stream shading. However, this should be mitigated through emergency horse gathers.

Wildland Fire Management. Management actions to reduce fuels and/or restore historic fire regime would increase watershed function and reduce the occurrence of wildland fire through riparian/wetland areas. This would facilitate maintenance and persistence of riparian/wetland vegetation, and subsequent maintenance or improvement of water quality and quantity. Mechanical treatments or prescribed fire could result in initial effects such as soil compaction and increased erosion. These effects could be reduced through application of BMPs. Over the long term, reduction of fuel loading would reduce the risk of catastrophic fire, and therefore reduce potential disturbance of vegetation communities, erosion, and sediment delivery to water bodies.

Recreation. Recreational use could result in localized disturbance to riparian and wetland vegetation and soil compaction, thereby causing erosion and sediment production and reducing shade. Intensive management of some areas s could provide greater protection for water resources through more immediate identification and resolution of conflicts between recreation and other resources.

4.3.3.3 Alternative B

Direct Effects

As in Alternative A, BMPs would be prescribed and implemented to facilitate maintenance or improvement of attributes identified through assessments, with the same effects. An assessment component would be added to identify and protect stream reaches or sites that provide cold water habitat in streams where temperature limits the abundance of aquatic species. These cold water refuges, created by spring seeps, geologic structure or faulting, or the characteristics of sedimentary deposits, would be important to providing water quality to meet beneficial cold water uses in the arid desert climate of the Planning Area. Active identification, assessment, and management of these areas would help maintain or improve water resources in these areas, providing more site-specific protection for beneficial uses (i.e. trout spawning and /or rearing habitat).

Management of perennial and intermittent streams to progress toward an advanced ecological status of riparian vegetation would emphasize management for riparian resource values, such as riparian density, structure, and cover that would maintain or improve water quality and quantity relative to capabilities and time frames of natural processes.

Under this alternative the WQRPs would generally be guided by stream/watershed prioritization (Table 2.1). As with Alternative A, water resources would improve over time, based on the prioritization schedule; short-term degradation of water resources may occur in some areas prior to the implementation of WQRPs, and relative to recovery processes. However, to restore impaired waters, the prioritization schedule should provide for efforts that would be directed toward areas most likely to respond to management, and toward areas most important for special status species, WSRs, and wilderness.

Under this alternative, active restoration (i.e. planting riparian vegetation) directed toward water quality would be limited to areas not likely to progress toward an advanced ecological status within the next 20 to 50 years.

Indirect Effects

Soils and Biological Soil Crusts. Natural processes would be allowed to dictate soil conditions except where management would be necessary to arrest excessive soil movement on critical sites. If other management activities and uses throughout the Planning Area remained at current levels, this management action may result in increased soil disturbance, compaction, and erosion.

Riparian and Wetlands. Activity plan management prescriptions or WQRP prescriptions promoting maintenance or improvement of riparian conditions would be developed similar to Alternative A, but would be guided by stream/watershed prioritization along with consideration of new circumstances and emerging opportunities. Under this alternative, riparian management prescriptions would be generally prioritized over the entire project area, potentially providing greater improvements in water quality for beneficial uses than under Alternative A.

Similar to Alternative A, this alternative would direct management of existing grazing systems and improvements in the CMPA to maintain PFC and promote maintenance or progress toward an advanced ecological status. This could result in increased density and structure in the riparian community, reducing erosion and water temperature.

Similar to Alternative A, establishing sources of localized tree and shrub source material for restoration would assist in restoring riparian vegetation. However, restoration actions (i.e., planting riparian vegetation) would be limited to areas that would not be likely to achieve an advanced ecological status in a 20 to 50 year timeframe.

Transportation and Roads. Roads within or providing access to riparian areas would be inventoried and routes that affect riparian areas would be eliminated, relocated, or reconstructed. Natural recovery of roads would be allowed in areas where erosion potential would be low and recovery potential would be high; active restoration of roads would be pursued in other areas. Road crossings would be evaluated and modified, as necessary, to simulate natural stream function and processes. All of these actions related to roads would decrease disturbances to riparian vegetation, expand riparian vegetation, increase vegetation cover, reduce erosion, increase shade, reduce sediment in streams, and buffer stream temperature.

Beaver populations would be managed as in Alternative A, with the same effects.

Woodlands. Under this alternative, no mechanical removal of juniper would occur, thereby reducing the short-term effects of disturbance from this practice as described under Alternative A. Where fire would be successful in reducing competition of juniper, riparian vegetation would likely increase in density and structure, thereby reducing erosion and increasing shade. Reliance on fire without mechanical manipulation may preclude or reduce the effectiveness of reducing competition of juniper in riparian/wetland areas. Reduced ground cover and suppression of riparian/wetland vegetation could increase sediment input to streams from overland flow and stream bank erosion.

Wildland fires that occur in quaking aspen and mountain mahogany stands would be allowed. Short-term effects may include increased erosion. Over long timeframes, restoration of the native vegetation and fire regimes would likely reduce erosion and improve other watershed functions, such as infiltration and ground water storage.

Rangelands. The ecological status of native plant communities would be defined by natural processes. In most locations, this would likely result in maintenance or increase in ecological status, with effects similar to Alternative A. In some

highly disturbed locations, vegetation communities may not progress toward higher ecological status, resulting in decreased cover, reduced infiltration, and increased sediment and runoff to water bodies.

Wildland fire would be used to promote ecologically desirable traits in the range plant community. Short-term effects would be similar to Alternative A. Long-term effects of this practice would also be similar to Alternative A, though improved watershed function may occur more quickly as both natural and prescribed fire would be used to promote desirable vegetation characteristics.

Noxious Weeds. Treatment for noxious weeds under this alternative would be only for high priority areas. In areas treated, effects on water quality would be similar to those in Alternative A. In areas that would not be treated, vegetation community function would be reduced, and would likely lead to increased erosion and runoff.

Special Status Species. Management prescriptions for special status species would have water quality effects similar to those in Alternative A, except that conservation and/or recovery would emphasize allowing natural processes to occur in all cases except where designated critical habitat of federally listed species occur. In some cases where habitat of special status species has been degraded and would not be likely to recover in the timeframe of this RMP, sediment and/or temperature improvements may not occur as quickly under this alternative.

Redband Trout Reserve. The Page Springs gauging station weir would be assessed for removal or modification under this alternative. If removal or modification were undertaken, short-term effects could include increased erosion and sedimentation. Incorporation of BMPs and resource protection into modification or removal designs could minimize or mitigate these effects.

Energy and Minerals. The entire Planning Area would be withdrawn from locatable mineral entry. No water resource effects would result from locatable mineral development.

The entire Planning Area would be closed to leasing and development of oil and gas, geothermal, and solid leasable mineral resources. No water resource effects would result from energy leasing and development.

The entire Planning Area would be closed to saleable minerals development. No water resource effects would result from saleable minerals development.

The entire Planning Area would be considered a renewable energy authorization exclusion area. No water resource effects would result from renewable energy development.

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. However, permanent increases or decreases in AMLs and forage allocations would be considered if forage availability changed greatly. Adjustments in AMLs and forage allocations could reduce the risk of increased utilization by wild horses and burros, thereby improving vegetation cover and structure, and reducing erosion.

Current water sources would be maintained, with similar water resource effects. However, additional water sources would also be developed to improve animal distribution. If properly located and maintained, these water sources would reduce wild horse and burro concentration and use in riparian areas, thereby reducing soil compaction and increasing riparian vegetation coverage and density. This in turn reduces erosion and increases shade, reducing sedimentation and temperature.

Grazing Management. Under this alternative, grazing would be eliminated in the AMU. In some areas, riparian vegetation may progress more quickly to PFC and to an advanced ecological status than in Alternative A. This may result in increased cover and canopy, thereby reducing erosion and temperature. Potential effects of grazing such as soil disturbance, soil compaction, and streambank destabilization, with associated erosion and sedimentation, would be eliminated.

Nonconsumptive uses would be emphasized in the CMPA. Water resource values may receive a higher emphasis under this management, providing more protection for riparian soils and vegetation, and reducing sediment and temperature inputs to water bodies.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed, and a plan to manage wildland fires for resource benefit would be developed. Where fires would be suppressed, short-term effects may include reduced sedimentation due to reduced erosion and maintenance of vegetation communities. Over the long term, management of wildfire for resource benefit would likely reduce water quality effects associated with the occurrence of larger, hotter fires with respect to Alternative A.

As in Alternative A, mechanical treatments or prescribed fire would be used to reduce fuel loading, with the same effects.

Recreation. Minimal recreation management could reduce recreation opportunities and use through much of the Planning Area. Reduced use could result in less localized disturbance to riparian and wetland vegetation, thereby increasing aquatic habitat cover and shade. Minimal recreational management may provide less protection for water resources, as conflicts between recreation and resources may be less likely to be identified and resolved.

4.3.3.4 Alternative C

Direct Effects

As in Alternative B, BMPs would be prescribed and implemented, and an assessment component would be added to identify and protect stream reaches or sites that provide cold water habitat in streams where temperature limits the distribution of aquatic species, with the same effects.

As in Alternative B, perennial and intermittent waters would be managed to maintain or progress toward an advanced ecological status.

As in Alternative B, WQRPs would be generally guided by stream/watershed prioritization (Table 2.2), with the same effects.

Under this alternative, active restoration may be pursued to initiate or increase the rate of progress toward an advanced ecological status. In disturbed or degraded areas, where natural rates of recovery may be slow, this action would increase vegetative cover and improve riparian community structure, reducing sediment input and increasing thermal buffering.

Indirect Effects

Soils and Biological Soil Crusts. As in Alternative A, BMPs would be implemented to protect and manage soil for all ground-disturbing activities, with the same effects.

Riparian and Wetlands. As in Alternative B, activity plan management prescriptions or WQRP prescriptions promoting improved riparian conditions would be developed and would be generally guided by stream/watershed prioritization, with the same effects.

As in Alternative B, this alternative would direct management of existing grazing systems and improvements to maintain PFC and would promote an advanced ecological status, which could result in increased density and structure in the riparian community, thereby reducing erosion and water temperature. In addition to Alternative B, both active and passive management and/or restoration of vegetation may be pursued. Some vegetation communities currently in degraded condition would develop coverage and structure more quickly under this alternative than under Alternatives A or B, reducing erosion and stream temperature.

Upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity as in Alternative B, with the same effects.

The establishment of sources of localized tree and shrub source material for restoration would be the same as for Alternative A, with the same effects.

Roads within or providing access to riparian areas would be managed the same as in Alternative B, with the same effects.

Beaver populations would be allowed to expand naturally as in Alternatives A and B, with the same effects. In addition, beaver would be reintroduced into suitable habitat. Since reintroduction areas would have suitable habitat for beaver, increases in vegetative utilization would be sustainable. The effects of reintroduction would therefore tend to include expansion of riparian vegetation, increased streambank stability, increased shade, and reduced erosion.

Woodlands. Mechanical removal of western juniper from quaking aspen and mountain mahogany stands would have the same effects as in Alternative A. Under this alternative, burning of quaking aspen stands would also have the same effects as in Alternative A. As in Alternative B, fire would be allowed in quaking aspen and mahogany stands to reduce the dominance of juniper, with the same effects.

Mechanical removal of juniper in riparian and sagebrush habitats would have the same effects as in Alternative A. Fire would be allowed to reduce western juniper influence in riparian habitats as in Alternative B, with the same effects.

Rangelands. The ecological status of native plant communities would be defined by minimizing emphasis on commodity production, and instead emphasizing natural values such as diversity and structure. Native plant communities would likely become more widespread, with variable effects.

Only natural fire would be used to promote ecologically desirable traits in the range plant community. Short-term effects would be similar to Alternative A. Long-term effects of this practice would be the same as in Alternative A.

The mechanical removal of woody vegetation to create a mosaic of successional stages in range vegetation would be similar to Alternative A, though only on selected sites. Effects would be similar to those described for Alternative A.

Noxious Weeds. As in Alternative B, treatment for noxious weeds under this alternative would be only for high priority areas, with the same effects.

Special Status Species. Management prescriptions for special status species would have water quality effects the same as those in Alternative A.

Redband Trout Reserve. As in Alternative B, the Page Springs gauging weir would be evaluated for removal or modification under this alternative, with the same effects.

Energy and Minerals. Important resource areas would be withdrawn from locatable mineral entry, including big game winter range, and areas containing special status species. In these areas, effects of locatable mineral development on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A.

Important resource areas would be closed to leasing and development of oil and gas, geothermal, and solid leasable mineral resources, including big game winter range, and areas containing special status species. In these areas, effects of energy development on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A. In addition, areas would be designated for NSO where natural values would be impaired by surface disturbance, and seasonal or other special stipulations would be designated where natural values would be impaired by seasonal leasing activities. Depending on the type of stipulation, water resource effects may be reduced.

Saleable minerals development would not be permitted in important resource areas, including areas containing special species habitat. In these areas, effects of saleable mineral development on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A.

Renewable energy authorizations would be excluded from ACECs, WSAs, WSRs, the Steens Mountain Wilderness, and the CMPA. In these areas, effects of renewable energy authorizations on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A.

Wild Horses and Burros. As in Alternative B, permanent increases or decreases in AMLs and forage allocations would be considered if forage availability changed greatly, with the same effects. Water sources for wild horses and burros would be managed as in Alternative B, with the same effects.

Grazing Management. Nonconsumptive uses would be emphasized in both the AMU and the CMPA. Water resource values may receive a higher emphasis under this management, providing more protection for riparian soils and vegetation, thus reducing sediment load and temperature inputs to water bodies.

Wildland Fire Management. As in Alternative B, wildland fires that threaten human life, private property, or significant resource values would be suppressed, and a plan to manage wildland fires would be developed, with the same effects.

As in Alternative A, mechanical treatments or prescribed fire would be used to reduce fuel loading, with the same effects.

Recreation. Recreational use could result in increased localized disturbance to riparian and wetland vegetation and soil compaction, thereby increasing erosion and sediment production and reducing shade. Intensive management of some areas could provide greater protection for water resources through more immediate identification and resolution of conflicts between recreation and other resources, while conflicts between recreation and resources may be less likely to be identified and resolved in other, less intensively managed areas.

4.3.3.5 Alternative D

Direct Effects

As in Alternatives B and C, BMPs would be prescribed and implemented, and an assessment component would be added to identify and protect stream reaches or sites that provide cold water habitat in streams where temperature limits the abundance of aquatic species, with the same effects.

WQRPs would be generally guided by stream/watershed prioritization (Table 2.2) However, priorities for development of WQRPs would also be based on cooperative management opportunities. Management of CWA 303(d) listed waters and contributing streams toward an appropriate ecological status to attain water quality standards or other surrogate measures through passive and/or active management, including restoration of riparian and adjacent upland vegetation, would have similar effects as Alternative C.

Indirect Effects

Soils and Biological Soil Crusts. As in Alternative A, BMPs would be implemented to protect and manage soil for all ground-disturbing activities, with the same effects.

Riparian and Wetlands. As in Alternatives B and C, activity plan management prescriptions or WQRP prescriptions promoting improved riparian conditions would be developed and would be generally guided by stream/watershed prioritization, with the same effects.

This alternative would direct management of existing grazing systems and improvements to maintain PFC and would promote an ecological status dependent on meeting multiple resource objectives through active and passive management and restoration. Effects would be similar to Alternatives A, B, and C. However, depending on activity or WQRP objectives, a range of riparian vegetation ecological status may be promoted to achieve water resource objectives.

Upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity, with the same effects as Alternative C.

Roads within or providing access to riparian areas would be managed similar to Alternatives B and C, with the same effects.

Beaver populations would be managed similar to Alternative C. However, this alternative would allow for the removal of beaver if suitable habitat would not be available or if economic harm or ecological damage would be occurring. In areas where natural expansion of beaver into unsuitable riparian habitat (i.e., incapable of sustaining increased utilization) occurs, removal of beaver could result in increased riparian vegetation density, increased shade, and reduced erosion. In areas where natural expansion of beaver into suitable riparian habitat (i.e., capable of sustaining increased utilization) occurs, but beaver would be removed to reduce economic harm, improvements to riparian vegetation and water resources associated with beaver would not occur.

Woodlands. Mechanical removal of western juniper from quaking aspen and mountain mahogany stands would be the same as in Alternative A, with the same effects. Under this alternative, burning of quaking aspen stands would be the same as in Alternative A, with the same effects. As in Alternative B, fire would be allowed in quaking aspen and mahogany stands to reduce the dominance of juniper, with the same effects.

Mechanical removal of juniper in riparian and sagebrush habitats would be the same as in Alternative A, with the same effects. Fire would be allowed to reduce western juniper influence in riparian habitats as in Alternative B, with the same effects.

Rangelands. The ecological status of native plant communities would be maintained or improved as in Alternative A, with the same effects.

Both prescribed and natural fire would be used to promote ecologically desirable traits in the range plant community. Short-term effects would be similar to Alternative A, though greater in magnitude. Long-term effects of this practice would also be similar to Alternative A, though effects would be more widespread across the Planning Area.

The mechanical removal of woody vegetation to create a mosaic of successional stages in range vegetation would be the same as in Alternative A, with the same effects.

Noxious Weeds. Management of noxious weeds would be similar to Alternative A, except that emphasis on control would be given to high quality natural resource areas. Water resource effects would be similar to Alternative A.

Special Status Species. Management prescriptions for special status species would have water quality effects similar to those in Alternative A.

Redband Trout Reserve. As in Alternatives B and C, the removal of the Page Springs gauging station weir would be assessed, with similar effects.

Energy and Minerals. Areas containing federally listed species and their designated critical habitat would be withdrawn from locatable mineral entry. In these areas, effects of locatable mineral development on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A.

As in Alternative A, no new areas would be closed to leasing and development of oil and gas, geothermal, and solid leasable mineral resources, with the same effects. Some ACECs would be designated for NSO, and seasonal or other special stipulations would be designated for big game winter range, and areas containing federally listed species and their designated critical habitat. Depending on the type of stipulation, water resource effects may be reduced in these areas.

Saleable minerals development would similar to Alternative A, except that permits would not be allowed in any ACECs or areas containing federally listed species and their designated critical habitat. Water resource effects from saleable minerals development would be eliminated in these areas.

Renewable energy authorizations would be excluded from ACECs, WSAs, WSRs, the Steens Mountain Wilderness, and the CMPA. In these areas, effects of renewable energy authorizations on water resources would be eliminated. In the rest of the Planning Area, effects would be similar to Alternative A.

Wild Horses and Burros. As in Alternative B, permanent increases or decreases in AMLs and forage allocations would be considered if forage availability changed greatly, with the same effects.

Water sources for wild horses and burros would be managed the similar to Alternative B, with the same effects.

Grazing Management. Sustainable livestock grazing that meets allotment management objectives would be emphasized in both the CMPA and the AMU. Less emphasis could therefore be placed on other resource values, such as water resources.

Wildland Fire Management. As in Alternative B, wildland fires that threaten human life, private property, or significant resource values would be suppressed and a plan to manage wildland fires would be developed, with the same effects as in Alternative B.

As in Alternative A, mechanical treatments or prescribed fire would be used to reduce fuel loading, with the same effects.

Recreation. The effects would be the same as in Alternative C.

4.3.3.6 Alternative E

Direct Effects

As in Alternative A, BMPs would be prescribed and implemented to facilitate maintenance or improvement of attributes identified in PFC assessment, and management would consider ecologically important cold water refuges. Effects would be the same as Alternative A.

Similar to Alternative A, riparian areas and adjacent uplands of 303(d) listed water bodies would be managed according to site or reach management objectives. However, development and implementation of WQRPs would be generally guided by stream/watershed prioritization as in Alternative B.

Indirect Effects

Soils and Biological Soil Crusts. As in Alternative A, BMPs would be implemented to protect and manage soil for all ground-disturbing activities, with the same effects.

Riparian and Wetlands. As in Alternatives B, C, and D, activity plan management prescriptions or WQRP prescriptions to promote maintenance or improvement of riparian conditions would be developed and would be guided by stream/watershed prioritization, with the same effects.

Grazing and recreation management would be implemented to provide maximum use while maintaining or progressing toward PFC and/or WQRP objectives. Effects would be similar to Alternative A.

As in Alternative B, upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity, with similar effects.

Roads within or providing access to riparian areas would be managed similar to Alternative A, with the same effects.

As in Alternative A, beaver populations would be allowed to expand naturally as habitat conditions indicate unless suitable habitat would not be available, or economic harm or ecological damage would be occurring (as in Alternative D), with the same effects.

Woodlands. Mechanical removal of western juniper from quaking aspen and mountain mahogany stands would be similar to Alternative A. Under this alternative, burning of quaking aspen stands would be similar to Alternative A. Similar to Alternative B, fire would be allowed in quaking aspen and mountain mahogany stands to reduce the dominance of juniper.

Mechanical removal of juniper in riparian and sagebrush habitats would be similar to Alternative A. Fire would be allowed to reduce western juniper influence in riparian habitats similar to Alternative B.

Rangelands. The maintenance of native plant communities would not be emphasized under this alternative. While many native communities would be converted to nonnative, water resource effects would be highly variable, depending on site history and location.

As in Alternative D, both prescribed and natural fire would be used to promote ecologically desirable traits in the range plant community, with the same effects.

Noxious Weeds. As in Alternative D, management of noxious weeds would be similar to Alternative A, except that emphasis on control would be given to high quality natural resource areas. Water resource effects would be similar to Alternative A.

Special Status Species. Management prescriptions for special status species would have water quality effects similar to those in Alternative A.

Redband Trout Reserve. As in Alternatives B, C, and D, the Page Springs gauging station weir would be assessed for removal or modification under this alternative, with similar effects.

Energy and Minerals. No new areas would be recommended for withdrawal from locatable mineral entry. Effects would be the same as Alternative A.

As in Alternative A, no new areas would be closed to leasing and development of oil and gas, geothermal, and solid leasable mineral resources. No seasonal or other special stipulations would be designated. Effects would be the same as Alternative A.

Saleable minerals development would be the same as Alternative A, with the same effects.

As in Alternative D, renewable energy authorizations would be excluded from ACECs, WSAs, WSRs, the Steens Mountain Wilderness, and the CMPA, with the same effects.

Wild Horses and Burros. As in Alternative B, permanent increases or decreases in AMLs and forage allocations would be considered if forage availability changed greatly, with the same effects.

The addition of the Dry Creek and Big Springs pastures in the Fish Creek-Big Indian Allotment, and the Carlson Creek Allotment, Serrano Point Allotment, and Bone Creek and Miners Field pastures of the Alvord Peak Allotment would return wild horses to areas where they have not been since the 1970s. This could affect water resources in these areas by adding year long use of the water and riparian resources. Some of these areas have streams that would not be in PFC at present and the addition of wild horses and year long use may not allow these areas to reach PFC. This translates into potential loss of structure and diversity of riparian plant species that relates to elevated water temperature. Year long use could also affect streambank stability that could affect the amount of sediment in the water and reduce water quality. Water sources for wild horses and burros would be managed similar to Alternative B, with similar effects.

Grazing Management. Grazing opportunities would be maximized in both the CMPA and the AMU. Less emphasis could therefore be placed on other resource values, such as water resources.

Wildland Fire Management. As in Alternative A, all wildland fires would be suppressed, with the same effects. A plan to manage wildland fires for resource and economic benefits would be developed, with the same effects as Alternative D.

As in Alternative A, mechanical treatments or prescribed fire would be used to reduce fuel loading, with similar effects.

Recreation. The effects would be the same as in Alternative C.

4.3.4 Summary of Effects

Under all alternatives, the application of BMPs would be the primary mechanism to reduce erosion and disturbance to vegetation, and subsequently maintain, restore, or improve water quality and quantity on public lands. WQRPs or other sufficiently stringent measures would be developed and implemented to restore all impaired water bodies in accordance with established TMDL(s). Riparian areas associated with perennial or intermittent surface water would be managed to attain or maintain PFC. Riparian areas in PFC may not necessarily be sufficient to maintain or restore water quality, depending on the most sensitive beneficial use. However, PFC would establish the initial condition from which to manage activity plan objectives and beneficial use requirements.

Alternatives B, C, and D provide a proactive mechanism to identify stream reaches or sites that provide cold water habitat for aquatic species recognized as the most sensitive beneficial use; this process would assist the state in delineation and protection of ecologically important cold water refuges. This approach may facilitate recognition of specific habitat areas for species such as trout to seek refuge from summer stream temperatures in systems that would be recovering or would not be capable of achieving state water quality temperature standards.

Alternatives B, C, D, and E recognize prioritization of streams or watersheds for developing and implementing WQRPs to address waters listed as impaired pursuant to the CWA, section 303(d). This would facilitate recognizing or implementing management in areas most likely to respond to management efforts; toward areas associated with special status species, WSR or wilderness; and coordination with other resource management efforts. In addition, Alternative D further prioritizes these streams and watersheds based on cooperative management opportunities such as private land management actions.

Alternatives B, C, and D provide recognition and opportunities for passive and active restoration of riparian and upland communities to progress toward ecological conditions to meet water quality objectives. However, Alternative B emphasizes passive management that may delay or preclude restoration of ecological conditions necessary to meet water quality objectives, such as riparian and/or upland vegetation communities.

4.3.5 Cumulative Effects

Past management practices such as historic livestock grazing, coupled with natural events of drought, flood, and wildland fire, have and may continue to affect water quantity and quality across the Planning Area. Landform patterns further define potential susceptibility or resilience to perturbations that affect water quantity and quality, such as stream channel morphology and riparian vegetation condition. For example, high to moderate gradient stream channels found in confined canyons have evolved under conditions of hydraulic disturbance and provide natural resilience to erosion. These areas often have less exposure to public land uses such as livestock grazing and recreation. Less confined valleys would be generally comprised of alluvial sediments with stream channels that would be more reliant on riparian vegetation for stability and more susceptible to disturbance. These areas have generally been more accessible and susceptible to potential disturbance from livestock grazing, wild horses, and recreational uses. Hydraulic disturbance from moderate to high stream flow events following natural or human-induced disturbances to vegetation (e.g., wildland or human-caused fire or livestock grazing) altered some of these channels through excessive vertical and/or lateral channel erosion that may have resulted in lowering the local ground water table. Entrenched channels and a lowered water table reduce recruitment and recovery of riparian vegetation until channel adjustment occurs, such as channel widening and reestablishment of floodplain area to reduce erosive forces. Riparian vegetation succession would be interrelated with floodplain development, and likely proceeds in a nonlinear fashion. Therefore, the rate of recovery would be a matter of speculation.

The majority of perennial and intermittent stream reaches in the Planning Area subjected to past channel degradation has progressed along the channel adjustment phase as indicated by PFC assessments. Stream channels that would be properly functioning, or functioning at risk contain the primary attributes to progress toward achieving water quantity and quality objectives. Present and future management of water resources on public lands in the Planning Area incorporates BMPs to reasonably prevent degradation of water quality. WQRPs and activity plan level objectives at a site, reach, or watershed scale would be developed and implemented to maintain, improve, or restore water quantity and quality relative to beneficial uses and TMDL requirements.

4.4 Soils and Biological Soil Crusts

4.4.1 Goals and Objectives

Goal 1 - Manage soils on public land to maintain, restore, or improve soil erosion class, watershed health, and areas of fragile soils.

Objective 1. Manage mineral soil to limit accelerated erosion on critical sites, protect soil characteristics on noncritical sites, and maintain or improve existing infiltration and permeability.

Goal 2 - Increase the understanding of the management of northern Great Basin biological soil crusts.

Objective 1. Collect biological soil crust data within the Planning Area

4.4.2 Assumptions

Soil productivity varies widely and reflects site-specific natural conditions and past management practices. Management actions affect soils productivity. Since natural processes would be slow to restore soil productivity in this semi-arid region, prevention of soil degradation would be the most time- and cost-effective remedy. Soil erosion rates would be highly dependent on the proportion of the soil surface that would be protected from raindrop impact by vegetation cover. Soil resources would be dependent on the condition of other resources, primarily upland and riparian vegetation. Management actions that affect the condition of these resources would also affect soils and biological soil crusts. Erosion rates increase exponentially as plant cover decreases.

BMPs would be acknowledged as the best way to maintain and restore soils where management activities affect soil resources. BMPs would be designed for specific actions at individual sites and in overall management actions designed to reduce soil resource effects due to other uses and activities such as grazing and recreation. The effectiveness of BMPs

would be dependent upon the use of adequate measures, appropriate implementation, and performance in protecting soil resources. These assumptions include: 1) BMPs are selected and implemented appropriately; 2) monitoring of BMP implementation and effectiveness would be conducted; and 3) monitoring data would be used in an adaptive management framework to promote effective BMPs for protecting soil resources.

Several management actions in the sections describing environmental effects on these resources, particularly rangeland/vegetation, would be specifically designed to maintain or restore soil resources. These management actions would be analyzed under indirect effects in the following discussion.

Portions of the Planning Area would not be public lands, and BLM management actions alone may not sufficiently protect soil resources. In mixed ownership watersheds, the BLM would be assumed to work in cooperation with surrounding landowners to develop activity plans that would protect soil and other resource values.

4.4.3 Analysis of Alternatives

4.4.3.1 Effects Common to All Alternatives

Direct Effects

BMPs would be prescribed and implemented at the activity plan level to prevent degradation of soil resources. Activity plans that could affect soils and biological soil crusts include site-specific projects such as transportation plans and recreation management plans. During the development of the activity plan, specific BMPs designed to protect soil resources would be selected. The application of BMPs would be an effective means of reducing erosion, protecting water quality, increasing desirable vegetation cover, and preventing noxious weeds or undesirable plant introductions.

Due to the fragility of biological soil crust communities, damage to biological soil crusts would occur through any management activities that disturb soils where soil crust communities have developed. Damage to biological soil crusts could result in erosion and noxious weed or other invasive plant introductions. The effects would be the same under all of the alternatives.

Indirect Effects

Retaining current road use and closing other roads and trails could affect the stability of soils over all the alternatives if there would be an unusual weather event with flooding. Soil movement would be accelerated on sites with exposed soils.

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Increases and decreases in AML and forage allocations would be considered under all the alternatives except Alternative A. Therefore, Alternative A has the greatest potential for effects on soil resources, including erosion, compaction, and changes in vegetation communities by wild horse and burro use.

4.4.3.2 Alternative A

Direct Effects

Current management practices would continue, and would continue to reduce soil erosion. BMPs would be implemented on all potential surface disturbing activities affecting soils. These activities could occur from the construction or maintenance of roads, range improvements, or other surface disturbing projects. Effects would be primarily caused by compaction from vehicle, recreation, livestock, or wild horse use; loss of soil off-site by water and wind erosion; and damage to biological soil crusts.

Indirect Effects

Woodlands. Mechanical removal of younger western juniper trees would be implemented to maintain late-seral stage western juniper woodlands. Although this management activity may increase erosion through surface effects, these effects would be expected to be localized and minimal. Western juniper and associated woody species would be removed by mechanical methods or prescribed fire in quaking aspen and mountain mahogany stands. Over the short term, vegetation removal and manipulation treatments could result in soil compaction and increased erosion in both upland

and riparian/wetland habitats. Over the long term, these practices could restore historic soil and vegetation characteristics, and watershed function.

Rangelands. Rangeland community plant cover and density would be maintained or increased, meeting the S&Gs, and resulting in decreased compaction and erosion. Desirable nonnative seedings would be managed to maintain vegetation composition and to meet S&Gs.

Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland vegetation. These activities would result in initial soil disturbance, compaction, erosion, and runoff. The application of BMPs and restoration or rehabilitation of these areas could reduce these short-term effects.

Long-term effects of these vegetation manipulation practices would reduce dominant woody vegetation and would release desirable plant species, resulting in reduced erosion and increased ground cover. Biological soil crusts may be affected by any actions that disturb soils where soil crust communities have developed.

Energy and Mineral Development. Soils could be affected by mineral exploration and development on lands currently open to locatable mineral activity. Soils would be affected by these activities due to surface disturbance, compaction, and erosion caused by wind and water. Additional mining would affect soils and vegetation throughout a greater area. Currently, soils would be normally protected by stockpiling and seeding to reduce wind- and water-caused erosion.

Leasing and development of oil, gas, geothermal, and solid leasable mineral resources as well as renewable energy would continue in open areas under the current management framework. Depending on the size, nature, and location of any new development, effects on soil resources could include increased erosion due to road development, vegetation disturbance, and damage to biological soil crusts.

The development of saleable minerals would be permitted on a case-by-case basis under this alternative. Depending on the size, nature, and location of the development, effects on soil resources could include increased erosion due to road development, vegetation disturbance, and damage to biological soil crusts.

Grazing Management. Livestock grazing use would continue to be authorized in the existing allotments in the AMU and the CMPA. Livestock grazing increases soil compaction, particularly along trails and at waterholes. Current management practices, including proper stocking rates for livestock, rotation of grazing, and periodic rest from grazing, have reduced soil effects and erosion.

Wildland Fire Management. Burned areas would be evaluated for the necessity of seeding and rehabilitation to protect soils. Evaluations would lead to the rehabilitation of burned areas to provide vegetation cover and reduce soil erosion, particularly in those areas where natural recovery would be limited. All wildland fires would be suppressed using appropriate management actions, which may provide beneficial short-term effects due to reduced erosion and maintenance of vegetation communities. The long-term effects may increase erosion and vegetation disturbance due to the potential for larger, hotter fires.

Fire suppression activities could disturb soils and cause erosion in the short term. A combination of mechanized and nonmechanized equipment would be utilized to rehabilitate areas altered by fire suppression activities to protect soil and other resources. A mixture of native and desirable nonnative plant species would be used to rehabilitate burned areas where natural recovery would be limited.

Prescribed fire and mechanical treatments would be used to reduce fuel loading, resulting in short-term effects such as soil compaction, increased erosion, and damage to biological soil crusts. These effects could be reduced through the application of BMPs. The reduction of fuels would reduce the risk for catastrophic fire and also reduce the potential disturbance, erosion, and sediment delivery of soils, while reducing the effects on vegetation community structure.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase the potential for noxious weed establishment or accelerated erosion.

Off-Highway Vehicles. Approximately 675,900 acres would be designated as open to OHV and mechanized vehicle use within the Planning Area, potentially resulting in surface disturbance, soil compaction, erosion, and damage to biological soil crusts.

Recreation. Expansion of existing developed and undeveloped recreation sites would be considered, potentially increasing surface disturbance and soil erosion and damaging soil crusts, particularly in concentrated use areas.

4.4.3.3 Alternative B

Direct Effects

There are no direct effects.

Indirect Effects

Woodlands. Under this alternative, no mechanical removal of younger western juniper trees would be implemented, reducing the short-term effects of disturbance. The historic fire regime could be restored by allowing fires to burn in old growth juniper stands. Short-term effects on soils may include an increase in erosion. Long-term effects on soil resources would probably reduce erosion, since the size and intensity of fires would likely be reduced as the historic fire regime becomes reestablished.

Western juniper and associated woody species would not be removed by mechanical methods or prescribed fire in quaking aspen and mountain mahogany stands, reducing the short-term and long-term effects on soils.

Grazing Management. With the removal of livestock grazing in the AMU, the condition of areas previously affected should recover, limited only by the opportunity for noxious weed establishment. Deposition of plant litter and incorporation of organic material into the soil would increase across the landscape, resulting in increased productivity, decreased erosion, and progression toward the DRC. The rate of water, nutrient, and energy cycling and soil movement would be restored on sites dominated by native species, affecting soils. Biological soil crusts would recover in areas previously damaged by livestock, resulting in increased vegetation cover, improved infiltration rates, and less erosion.

Short-term indirect effects on soil resources would occur as existing rangeland projects would be abandoned and removed. In the long term, areas disturbed during project removal would revegetate naturally in areas of heavy use.

Wildland Fire Management. A combination of mechanized and nonmechanized equipment would be utilized to rehabilitate areas altered by fire suppression activities, thereby increasing the disturbance on soils in the short term and decreasing the erosion rate in the long term.

Transportation and Roads. Road areas designated as closed would be maximized, reducing the effects on soils throughout the Planning Area Road closures would help to reduce soil compaction and potential erosion. All other areas would be designated as limited to designated roads and trails with a minimum number of roads and trails identified. Only designated roads would remain open and would be maintained on an as-needed basis. Limited maintenance of existing roads could increase effects on soils as a result of normal erosion of roadbeds, wet weather rutting by vehicles, and channeling of runoff. No new roads would be developed, thereby eliminating additional sources of soil erosion.

OHV and mechanized vehicle activity would be limited to designated roads and trails and closure of many portions of the Planning Area would greatly reduce soil compaction, erosion potential, and effects on soil crusts, particularly on a watershed basis. Snowmobiles would not be allowed to operate in the CMPA, thereby reducing the potential effects from fuel spills and soil compaction.

Recreation. Closing areas to camping would greatly reduce the effects to soils. Restricting camping in the CMPA to developed campgrounds would eliminate the effects to soils from dispersed camping and could require hardening of soils in concentrated use areas. Effects to soils would be reduced through the closing or rehabilitation of dispersed sites where natural processes would be jeopardized. Limiting visitor use and group sizes would help maximize natural processes and minimize effects on soils.

4.4.3.4 Alternative C

Direct Effects

There would be no direct effects associated with Alternative C.

Indirect Effects

Within the AMU, this alternative would have management emphasis on nonconsumptive uses, while providing for minimal sustainable livestock grazing, having similar effects on soil resources as Alternative A, but lower in magnitude. Livestock use in the CMPA would continue and the effects would be the same as Alternative A. Emphasis for this alternative would be to meet soil and other resource management objectives by implementing (or removing) rangeland projects and/or livestock management practices to enhance resource values.

Permitted use could be discontinued in vacant allotments having resource conflicts. This action could decrease the number of acres where soils would be affected by livestock grazing, and increase vegetation cover on upland and in riparian/wetland plant communities in those areas.

Many areas would be recommended for mineral withdrawal, and closed to leasing within the Planning Area, resulting in no effect on soils or biological soil crusts. Mineral exploration and development activities would be reduced and more restrictive under this alternative than Alternatives A, D, and E; therefore, direct effects on soils from mineral activity would be minimal in comparison to those alternatives. Soils would be protected by soil stockpiling and seeding to reduce wind erosion, the same as Alternative A.

Woodlands. Wildland fire would be used to remove younger western juniper trees to maintain late-seral stage western juniper woodlands. Although this management activity may increase erosion through surface effects, these effects would be expected to be localized and minimal. Western juniper and associated woody species would be removed by mechanical methods, prescribed fire, and wildland fire in quaking aspen and mountain mahogany stands. Treated areas would be fenced where recovery may be limited by browsing of livestock and/or wildlife.

Over the short term, vegetation removal and manipulation treatments could result in soil compaction and increased erosion in both upland and riparian/wetland habitats. Over the long term, these practices could restore historic soil and vegetation characteristics, and watershed function.

Rangelands. Native rangeland plant communities would be maintained or improved with emphasis toward attaining ecological status and minimizing commodity production. Rangeland plant communities would be more widespread and variable, resulting in decreased compaction and erosion. Reestablishment of native plants in areas currently in poor condition from nonnative plantings would improve plant cover and reduce erosion.

Desirable nonnative seeding would be managed to diversify composition and structure of selected nonnative seedings, with emphasis on natural values and other resource objectives.

Only wildland fire would be used to promote the DRC in the range plant communities. Short- and long-term effects would be similar to Alternative A.

Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland vegetation, similar to Alternative A, though only on selected sites. These activities would result in the same effects as described for Alternative A, only lesser in magnitude.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase the potential for noxious weeds and other invasive species to degrade the site.

Wildland Fire Management. All fires that threaten human life, private property, or areas that possess significant resource value would be suppressed. Fires that do not threaten human life, private property, or important areas would be evaluated and managed using minimal suppression actions.

A mixture of native plant species to rehabilitate soils in burned areas would be utilized where natural recovery would be limited, thereby reducing the potential soil erosion. A combination of mechanized and nonmechanized equipment would be utilized to rehabilitate soils in areas altered by fire suppression activities.

Short-term effects on soils may include erosion and compaction. These effects would be expected to be minimal and could be mitigated with the implementation of BMPs. Long-term effects on soils would increase vegetation cover and decrease erosion.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase potential for noxious weeds and other invasive species to degrade the site.

Transportation and Roads. Road maintenance and seasonal road closures would be implemented to protect and enhance soils and natural resource values and to reduce road damage. In specific, 30 miles of roads would be permanently closed. Additional roads would be closed during winter, which would reduce soil compaction and erosion potential, particularly on a watershed basis. Existing roads and transportation routes would have the same effects on soil resources as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicles would be managed to minimize use in accordance with limited and closed OHV designations. Most of the Planning Area would be designated as limited to designated roads, ways, and trails. This could protect soils and soil crusts and prevent soil erosion in many areas throughout the Planning Area. Snowmobiles would not be allowed on the Steens Loop Road, reducing the potential fuel contamination of soils.

Recreation. New campgrounds would be developed, reducing the potential disturbance of soils from construction activities and recreation use. Limiting camping to developed campgrounds and designated sites in the CMPA would reduce the area of disturbance. Effects to soils would be reduced through the closing or rehabilitation of dispersed sites where resource values would be affected beyond acceptable levels. Visitor use, including group size and trail development, would be managed with emphasis on resource values, including soils.

4.4.3.5 Alternative D

Direct Effects

Balancing the increase in projects to improve soil condition through rehabilitation/restoration with the increase in recreation and commodity uses would be greatest under this alternative. Effects on soils from increases in disturbances would be greater than Alternatives A, B, or C, and less than Alternative E. Management emphasis to rehabilitate soils and other resources would be greater than alternatives A, B, and E. BMPs would be implemented on all potential surface disturbing activities effecting soils. Any activities that remove the vegetation cover would increase the erosion rate, requiring BMPs and soil protection.

Biological soil crust monitoring data would be utilized to inform decisions and encourage cooperative management practices. A standard monitoring protocol would be developed the same as in all of the alternatives. An increase in new projects where activities disturb or compact biological soil crusts would cause an effect on soils.

Indirect Effects

Woodlands. With the same effects on soils as described in Alternative A, 90 percent of western juniper would be removed from old growth stands. Fires in old growth western juniper would have the same effects as Alternative C.

Mechanical removal of juniper in aspen, mountain mahogany, riparian, and sagebrush plant communities would have the same effects as Alternative A. Fire would be allowed in quaking aspen and mountain mahogany stands and riparian habitats with the same effects as described in Alternative B.

Rangelands. The ecological status of native plant communities would be maintained or improved as in Alternative A, with the same effects on soil resources.

Desirable nonnative seedings would be managed to diversify composition and structure of selected seedings, consistent with other resource objectives.

Both prescribed and wildland fires would be allowed to promote ecologically desirable traits in rangeland plant communities. Short- and long-term effects would be similar to Alternative A, though greater in magnitude and more widespread across the Planning Area.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase the potential for noxious weeds and other invasive species to degrade the site.

The mechanical removal of woody vegetation to create a mosaic of successional stages would have the same effects on soils as Alternative A.

Energy and Minerals. Many areas would be recommended for locatable mineral entry withdrawal within the Planning Area. This action would reduce the potential effects on soils in those areas. These areas include ACECs, WSAs, WSRs, the Steens Mountain Wilderness, the CMPA, BLM recreation sites (existing and potential), listed cultural sites, important paleontological localities, RNAs, areas with special status species and habitat, and within 0.6 mile of sage-grouse leks. No new areas would be closed to leasing for energy development, which could potentially cause more surface disturbances affecting soils. Areas of NSO would be designated in ACECs, listed cultural sites, and important paleontological localities, which would reduce the amount of surface area that could potentially be affected. Permitting of saleable mineral development would occur throughout the Planning Area, except in all ACECs, BLM administrative sites, potential BLM recreation sites, National Register eligible cultural sites, important paleontological sites, RCAs, areas with federally listed species and their designated habitat, and within 0.6 mile of sage-grouse leks. Areas where mineral development occurs would affect soils and biological soil crusts with surface disturbance and related erosion/compaction. The WSRs, Steens Mountain Wilderness, and 165,055 acres of public lands would be designated renewable energy exclusion areas. All WSAs and ACECs would be designated as renewable energy avoidance areas. Exclusion and avoidance areas would provide protection for soils and other resources in those areas. The remainder of the Planning Area would be processed for consideration of renewable energy development, which could degrade soil resources.

In site development planning, soils would be protected by soil stockpiling and seeding to reduce wind erosion, the same as Alternative A.

Grazing Management. Soil effects would be monitored by providing for sustainable livestock grazing in the AMU and the CMPA. Effects would be the same as Alternative A.

Permitted use could be discontinued in all or portions of allotments with high resource conflicts. In these areas, this management would have the same effects as Alternative C.

Wildland Fire Management. As in Alternative B, all fires that threaten human life, private property, or significant resource values would be suppressed. A mixture of desired nonnative and native plant species would be used to rehabilitate burned areas to protect soils from erosion. A combination of mechanized and nonmechanized equipment would be utilized to rehabilitate areas where soils and other resources have been altered by fire suppression activities, which could affect soils in the short term with ground disturbance, and affect soils in the long term with site rehabilitation resulting in increases in plant cover and reduced erosion.

Opening the Planning Area to harvesting fuel by-products would increase short-term effects on soils and biological soil crusts by surface disturbance, compaction, and erosion. These effects would be expected to be localized and minimal. In the long term, fuel load reductions and reduced potential for catastrophic fire would have an effect on soils.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase the potential for noxious weeds and other invasive species to degrade the site.

Transportation and Roads. Roads would be managed primarily the same as under Alternative A, with additional improvements and developments in high recreation use areas to accommodate an increase in visitor use. This would increase the potential for soil erosion, degradation of biological soil crusts, and other effects.

Off-Highway Vehicles. Soils could be affected by fuel spills, vegetation damage and/or removal, and compaction from OHV use. OHV and mechanized vehicle use would be managed through cooperative agreements with clubs in accordance with OHV designations. Organized events would be allowed, potentially increasing the effect on soils. OHV and mechanized vehicle use on approximately 1,476,371 acres of the Planning Area would affect soil resources in areas where use could cause compaction, surface disturbance, and erosion.

Recreation. Increased visitor use and recreation demands would increase the level of effects to soils. Soil compaction and erosion would occur in high recreation use areas, especially developed campgrounds and dispersed sites. Increased dispersed recreation would increase the area and degree of soil compaction and erosion. Any new construction would

degrade soils. In areas where recreation use increases, soil and soil crusts would become degraded, nonproductive and eroded, and susceptible to noxious weed introductions. Management and rehabilitation efforts would be necessary.

4.4.3.6 Alternative E

Direct Effects

BMPs would be implemented on all potential surface disturbing activities affecting soils. More activities that affect soils would occur under this alternative from the construction or maintenance of roads, increases in OHV use and open areas, increases in grazing and range improvement projects, or other surface disturbing projects. Any activities that remove the vegetation cover and increase the erosion rate would affect soils and other resource values.

Biological soil crust monitoring data would be utilized to inform decisions concerning natural resources and additional commodity production in areas containing biological soil crusts. A standard monitoring protocol would be developed the same as all of the alternatives. The greatest effect on biological soil crusts would be under this alternative to promote commodity uses, with its potential increase in grazing, mining, roads, OHVs, and recreation.

Indirect Effects

Woodlands. Ninety percent of western juniper would be removed from old growth stands with the same effects as described under Alternative A. Fires would be allowed to burn in old growth juniper stands with the same effects as Alternative C.

Mechanical removal of western juniper in quaking aspen, mountain mahogany, riparian, and sagebrush communities would have the same effects as described in Alternative A. Fire would be allowed in quaking aspen and mountain mahogany stands to reduce juniper dominance with the same effects as Alternative B.

Rangelands. The ecological status of native plant communities would be maintained or improved with the same effects as in Alternative A.

Desirable nonnative seedings would be managed to support grazing, while emphasizing diversity of composition and structure of nonnative seedings consistent with other resource objectives.

Prescribed and wildland fire would be implemented to promote ecologically desirable traits in rangeland vegetation communities. Short- and long-term effects would be similar to Alternative A, though greater in magnitude and more widespread.

The mechanical removal of woody vegetation to create a mosaic of successional stages in rangeland vegetation would have the same effects as Alternative A.

Energy and Minerals. Opening the majority of the AMU to mining could potentially degrade soils and soil crust communities. The maximum amount of land within the AMU would be available for locatable mineral exploration and development under this alternative. All areas not restricted by current laws or restrictions would be available for surface occupancy. All WSRs and the Steens Mountain Wilderness would be designated as exclusion areas, and all WSAs and ACECs would be designated as avoidance areas for renewable energy authorization.

No special seasonal or other stipulations would be applied for protection of soil or other resource values. The effect on soils and biological soil crusts from mining and/or energy production would be greatest under this alternative, including surface disturbances, dust, additional roads and road construction effects, erosion, and compaction.

At the project development sites, soils would normally be protected by soil stockpiling and seeding to reduce wind erosion, the same as Alternative A.

Grazing Management. Opportunities to maximize grazing in the AMU and the CMPA would be pursued under this alternative. Maximizing livestock grazing would have an effect on soils and biological soil crusts due to increased compaction, erosion, and resulting noxious weed introductions.

Allotments with relinquished permits would be re-allocated to new permittees, which would increase grazing pressure and its effects on soils over the landscape.

Wildland Fire Management. All wildland fires and wildland fire management activities would have the same effects as Alternative B. Mechanical treatments or prescribed fire would be implemented to reduce fuel loading, with the same effects as Alternative A.

Any activities that disturb soils where soil crust communities have developed could deplete soil productivity and increase the potential for noxious weeds and other invasive species to degrade the site.

Transportation and Roads. New roads would be constructed to encourage tourism, visitor use, and commodity production, which would have an effect on soils. New roads would increase soil compaction and erosion.

Road maintenance would be prioritized to meet commodity needs, and soil resource values could degrade. Road closures would occur only to protect the most critical resource values, and seasonal road closures would be implemented to reduce road damage.

Soil and biological soil crusts would become degraded, nonproductive, and eroded where road densities and resulting surface disturbances increase in the AMU. Disturbed soils would provide sites for increases in noxious weed introductions.

Off-Highway Vehicles. Designating areas of the AMU open to OHV and mechanized vehicle use could degrade soils and biological soil crusts, particularly in those areas where vehicles would be able to travel cross-country. Organized OHV events would compact and degrade soils in concentrated use areas. The greatest effects from OHV and mechanized vehicle use on soils and biological soil crusts would occur under this alternative. OHV and mechanized vehicle use would result in soil compaction, erosion, dust, and in some areas damage to biological soil crusts. Soils would be potentially contaminated by fuel spills, vegetation damage and/or removal and compaction from OHV and snowmobile use.

Recreation. Soil compaction and erosion would occur in high recreation use areas, especially developed campgrounds and dispersed sites. Increased dispersed recreation would increase the area and degree of soil compaction and erosion. All new construction would degrade soils. Undeveloped recreation sites would be expanded to increase tourism opportunities. In areas where recreation use increases, soil and soil crusts would become degraded, nonproductive and eroded, and susceptible to noxious weed introductions. Intensive management and rehabilitation efforts would be necessary.

4.4.4 Summary of Effects

Implementation of BMPs would be the primary mechanism under all of the alternatives to protect and manage soil, and to reduce erosion and disturbance to vegetation and water bodies. Activity-level management planning would be developed to restore areas where soils would be eroding, particularly areas with impaired water bodies.

The collection of biological soil crust data and the development of standard monitoring protocol would be used as indicators for rangeland and riparian/wetland health, which may provide additional protection of soil resources. Any activities that disturb soils where soil crust communities have developed could deplete soil productivity, and increase the potential for noxious weeds and other invasive species to degrade the site.

Under Alternative A, absence of prioritization at the watershed level for vegetation prescriptions could allow the degradation of soil resources in specific locations. Grazing management would not be directed toward advanced ecological status, particularly in riparian/wetland habitats or for the restoration of roads outside of special designation areas. Soil resource improvements in these areas would be slower than Alternatives B, C, and D.

Under Alternative B, potential activities that degrade soil resources would be eliminated throughout most of the Planning Area. Grazing would still have effects on soils in the CMPA. Management emphasis toward an advanced ecological status would likely improve or maintain soil resources. The elimination of management actions that effect soil resources would likely outweigh the potential consequences of less intensive management of noxious weeds and wildfire. Over the short term, this alternative may lead to localized declines in soil productivity. In the long term, this alternative would be likely to maintain or improve soils and biological soil crusts.

Short-term effects on soils would be less under Alternative C, primarily due to closures and land access and/or use restrictions. Management goals and objectives for soils could be met under Alternatives A, B, C, and D. The long-term effects from management emphasis under Alternatives E would likely not meet the management goals and objectives for soils and biological soil crusts. Due to the high level of potential disturbance over the greatest number of acres, effects on soils include but would not be limited to increases in undesirable vegetation (cheatgrass and invasive species), increased fire frequency, and lower soil productivity.

The greatest effect on soils would be from OHV and mechanized vehicle use in open areas, mineral development, new recreation construction, and livestock grazing. Most of these activities would be limited or restricted under Alternative B, having the least overall effect on soils than other resource uses. The likelihood of new mineral or energy development would be low under all the alternatives, and not permitted under Alternative B. The potential for new development would be greatest under Alternatives A, D, and E. OHV use would have the greatest effect on soils under Alternatives E, A, and D, respectively. New road construction and road maintenance would have the greatest effect on soils under Alternatives E and D. New recreational sites and trails construction would have the greatest effect on soils under Alternatives D and E. Grazing effects on soils would be greatest under Alternative E. The greatest emphasis to restore and rehabilitate soils and other natural resource values would be under Alternatives C and D. Due to the decrease in use and new development combined with the increase in restoration, Alternative C provides the greatest opportunity to meet the DRC for soils within the RMP time frame.

4.4.5 Cumulative Effects

Since the late 1800s, watershed health on public lands, including the soil component, has improved. This improvement would be anticipated to continue through the implementation of BMPs as standard operating procedures under all of the alternatives. This overall improvement would be anticipated to continue under these alternatives.

Alternative A would result in continuing the slow process of soil improvements and overall improvement to watershed health.

Alternative B could result in areas with short-term degradation of soils, but with long-term natural rehabilitation of soil resources and watershed health. Alternative C would provide the most resource protection and active restoration of soils and watershed health. Alternative D would emphasize more use, while providing active restoration of soils and watershed health to mitigate higher use. Alternative E would have the greatest short-term and long-term effects on soils and watershed health by increasing the emphasis on commodity uses and restoration to support those increases.

4.5 Vegetation

4.5.1 Riparian and Wetlands

4.5.1.1 Goals and Objectives

Goal 1 - Maintain, restore, or improve riparian vegetation, habitat diversity, and geomorphic stability to achieve healthy, productive riparian areas and wetlands and associated structure, function, process, and products that provide public lands values such as forage, water, cover, structure and security necessary to meet the life history requirements of fish and wildlife; public recreation and aesthetics; water quality and quantity; and livestock forage and water.

Objective 1. Achieve and/or maintain a rating of PFC of perennial and intermittent flowing and standing water bodies relative to site capability, site potential, and BLM management jurisdictions.

Objective 2. Maintain and/or improve riparian vegetation communities relative to ecological status, site potential and capability, and/or specific management objectives.

Objective 3. Manage riparian areas to maintain or restore soil moisture content and retention of ground water to augment base flow conditions during the warmer summer months.

4.5.1.2 Assumptions

Water bodies that do not meet Oregon's water quality standards would be managed with appropriate management actions developed for water quality limited or impaired streams, lakes, or other bodies of water in the Planning Area.

BMPs would be recognized as the best way to maintain and restore water quality and riparian/wetland community structure, and to prevent or reduce erosion. The effectiveness of BMPs requires the use of appropriate measures and adequate implementation, as well as monitoring of the implementation and effectiveness. Where BMPs would be required, it would be assumed that the selections and implementations would be appropriate, monitoring would be conducted, and monitoring data would be used in an adaptive management framework so that BMPs would be effective.

Riparian zones serve as a primary indicator of watershed health and would be a priority for management. The extent, continuity, and function of riparian/wetland areas have improved within the project area as a result of protection and management. Riparian/wetland vegetation would be dependent on the condition of other resources throughout the watershed, including soils, upland vegetation, and water availability. Accomplishment of site/reach-specific objectives would be dependent upon existing condition (ecological status), and subsequent environmental factors such as drought and flood cycles.

Since portions of the riparian/wetland vegetation throughout the Planning Area would not be administered by the BLM, actions taken by the BLM alone may not be sufficient to restore riparian/wetland communities along their entire courses within the watershed. In order to restore riparian/wetland vegetation and associated water bodies, it would be assumed that DEQ Water Quality Management Plans would be developed in coordination and cooperation with surrounding agencies and private landowners.

4.5.1.3 Analysis of Alternatives

4.5.1.3.1 Effects Common to All Alternatives

Direct Effects

The alternatives have the potential to affect riparian and wetland resources in terms of vegetation species diversity, cover, structure, distribution, and seral stage development of vegetation, and overall functioning condition of the riparian/wetland systems. BMPs would be continued, or prescribed and implemented at the activity plan level to promote the maintenance or improvement of riparian/wetland vegetation to maintain or progress toward PFC.

Based on surveys conducted between 1997 and 2000, 33 percent of the riparian areas assessed within the AMU and 25 percent of the riparian areas in the CMPA were not in PFC. Management directed to progress toward PFC for those streams not currently in PFC would likely increase the distribution and composition of riparian vegetation and facilitate opportunities to define and progress toward site/reach specific riparian vegetation ecological status objectives.

Sources of local riparian trees and shrubs (cottonwood, willow) would continue to be established and maintained to assist in riparian restoration efforts and to preserve genetic material.

Since the ODFW has the management responsibility for wildlife populations, the BLM would coordinate with the ODFW on the management of beaver populations throughout the Planning Area.

Indirect Effects

Water Resources. Management goals, objectives, and actions to maintain, restore, or improve water quality and quantity would promote the objectives for riparian/wetland vegetation and would be addressed in the alternatives identified under Water Resources. These effects would be the same under all of the alternatives.

BMPs would be prescribed and implemented at the activity plan level to maintain, restore, or improve floodplain function and process, and to progress toward PFC across all alternatives. Although riparian/wetland communities in PFC would not necessarily be at site or ecological potential, PFC represents a condition where adequate riparian vegetation would be present to maintain functional stability, and facilitate progress toward site/reach specific ecological status objectives.

Noxious Weeds. Inventories would be conducted to detect new introductions and to determine changes in distribution of known introductions for all the alternatives. Control of the introduction and proliferation of noxious weeds would be a priority in all of the alternatives.

Noxious weeds invade native plant communities, including riparian/wetland communities, resulting in degraded plant community structure, cover, and diversity; loss of soil productivity and nutrient cycling; decreased water holding capacity; and increased soil erosion rates.

The consistent application of BMPs on surface disturbance projects would reduce the effects from potential introduction of noxious weeds.

Special Status Species. Goals and objectives for the management of special status species promote the objectives for riparian/wetland vegetation. The presence of special status species could direct specific riparian vegetation management objectives, such as ecological status, beyond a level of PFC.

Grazing Management. Appropriate management actions would be implemented to meet other resource objectives if it would be determined that existing grazing management practices would be contributing to nonattainment of resource objectives, such as riparian/wetland function, water quality and/or special status species habitat. The potential effects of livestock grazing on riparian/wetland vegetation, such as reduced composition and distribution, may continue pending site-specific assessment, which would lead to the development and implementation of appropriate management. These effects may also be observed after implementation due to a lag in natural recovery processes.

Wildland Fire Management. Suppression of wildland fires would reduce the threat of burning riparian/wetland vegetation. Suppression action may result in temporary disturbance of riparian/wetland areas from trampling vegetation, compacting soil, and/or exposing soil to erosion. However, these effects may not be any greater or more likely than from the fire itself.

Lands and Realty. Acquisitions through exchange or purchase of riparian/wetland areas would provide opportunities to increase public land acreage of these important and specialized habitats. ROWs for access or utility corridors that affect riparian areas would be mitigated on a case-by-case basis.

Transportation and Roads. (CMPA only) Although road inventory and density estimates would not be available, existing roads in the CMPA would be assumed to be having limited impact on riparian areas. Where road crossings occur in riparian/wetland areas, reduction of riparian vegetation would be localized and generally confined in area. Elimination and reduction of road use associated to wilderness road closures further reduces potential effects, as well as facilitating necessary restoration. Inventory and subsequent analysis of existing roads would facilitate necessary opportunities to minimize or mitigate effects to riparian/wetland vegetation. Application of BMPs for road construction, maintenance and general management would prevent, reduce or mitigate potential effects to riparian/wetland vegetation such as reduced density, erosion or soil compaction.

4.5.1.3.2 Alternative A

Direct Effects

BMPs would be continued, or prescribed and implemented at the activity plan level to promote the maintenance or improvement of riparian/wetland vegetation to maintain or progress toward PFC. Depending on site/reach specific objectives, such as those developed and implemented to support WQRPs, riparian vegetation may be managed for a range of ecological status.

Beaver populations would be allowed to expand naturally under this alternative. Beaver expansion into riparian and wetland areas where riparian vegetation condition could not sustain increased utilization by beaver populations could result in reduced bank stability and shade, as well as subsequent increases in sediment input and water temperature. Beaver expansion into riparian communities where condition allows for sustainable increases in vegetation utilization by beaver could result in riparian/wetland vegetation expansion.

Indirect Effects

Woodlands. Juniper and other vegetation removal using prescribed fire and mechanical removal in the uplands and in riparian habitats could affect riparian/wetland vegetation by improving ground cover (e.g., increasing grass, forb, and shrub cover), increasing plant diversity, decreasing nondesirable species dominance, allowing greater infiltration and soil moisture storage, and improving watershed conditions. Initial effects on riparian/wetland habitats may include temporary reductions of riparian vegetation. These practices would restore riparian/wetland vegetation characteristics and improve watershed function.

Rangelands. Native rangeland plant communities would be maintained or improved with emphasis toward attaining ecological status. Rangeland community plant cover and density would be maintained or increased, thereby reducing erosion and improving conditions for streams and riparian/wetland habitats.

Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland and riparian vegetation. The effects of these activities would be the same as described above in the Woodlands section.

Noxious Weeds. Continued public education and cooperative partnerships for the control of noxious weeds could maintain or improve riparian/wetland conditions resulting in effects to riparian/wetland vegetation, and bank protection. Reducing competition for water and nutrients would improve the ground cover by favoring perennial species with better soil-stabilizing capabilities than noxious weeds and other invasive species.

Currently, there are noxious weeds in riparian habitats being treated with biological controls that have limited effectiveness. The effects of noxious weed introductions on riparian/wetland habitats include degradation of vegetation community structure, cover, and diversity; soil degradation and increased erosion; and increased sedimentation and degradation of water quality.

Fish and Wildlife. Opportunities to improve and/or restore fish and wildlife habitat may affect riparian areas through vegetation manipulation such as juniper removal by mechanical means or by prescribed fire. The effects of these actions would be to decrease the amount of undesirable vegetation in riparian areas and increase the amount and diversity of riparian vegetation. In addition, the effects of these actions would increase bank stability, shade, and bank structure for aquatic species. Effects would be analyzed on a case-by-case basis when site-specific activity plans were developed.

Energy and Minerals. The effects of energy and mineral exploration, location, development, and production would vary, depending on the location and degree of disturbance, the proximity to riparian/wetland resources, and the need to develop roads that would disturb riparian/wetland sites. The effects would be similar for oil and gas leasing, geothermal energy, and mineral sales causing ground disturbance that could increase erosion, remove riparian/wetland vegetation, release contaminants that could affect riparian/wetland vegetation, and alter drainage patterns by site and road development. Dewatering of streams and ground water for mineral extraction/production could degrade riparian/wetland vegetation and reduce stream flows.

Wild Horses and Burros. Maintenance of water for wild horses could have effects on riparian/wetland areas by reducing horse concentrations in riparian areas. Exclosure fences around springs would prevent grazing and trampling of vegetation at those sites.

Wild horses affect riparian/wetland sites through compaction and vegetation removal in some areas. Managing horses in HMAs reduces the effects on riparian/wetland areas outside these areas. Even though the boundaries for the South Steens and Kiger HMAs would remain the same, the effective area used by these horse herds has been reduced due to the Steens land exchanges and fencing of private land that followed. In the South Steens HMA, most riparian areas would be in PFC. Retaining the same AML on a smaller land base might increase the effects of horse use to riparian areas at springs and along sections of the Donner and Blitzen River system. As interior fences would be removed in the No Livestock Grazing Area, that portion of the HMA could be more accessible to horses. This would distribute horse use throughout more of the HMA and reduce riparian area use in other parts of the HMA. The Kiger horse herd has not used the portion of the HMA that was exchanged for approximately 15 years. Effects of horse use on riparian areas within the Kiger HMA would be the same as that which occurred before the Steens land exchange.

Grazing Management. Existing livestock grazing management has led to improved riparian/wetland conditions. Grazing and rangeland project implementation effects on riparian/wetland areas would be site specific, and has been adjusted to improve riparian/wetland resources in many portions of the Planning Area by managing vegetation and stream channel improvement. Other sites may still require management adjustments, and grazing could continue to have an effect on riparian/wetland areas. Grazing can reduce ground cover, litter development, watershed condition, and riparian/wetland vegetation.

Wildland Fire Management. Management actions to reduce fuels and/or restore historic fire regimes would increase watershed function and reduce the occurrence of wildland fire through riparian/wetland areas. This would facilitate maintenance and persistence of riparian/wetland vegetation. Prescribed fires could temporarily reduce riparian/wetland vegetation if burned; however, this event would be avoided or mitigated as necessary. Rehabilitation of wildland fire areas would promote soil stability and infiltration adjacent to riparian areas. Where natural riparian regeneration would

be expected to be limited, restoration could promote establishment of riparian/wetland vegetation. Temporary effects to riparian/wetland areas from mechanized fuels treatment or rehabilitation efforts may include soil compaction and vegetation disturbance. However, these effects would be expected to be of short duration, and minimized or mitigated.

Transportation and Roads. Road and ROW development in, near, or across riparian/wetland areas would affect riparian function and would be developed on a case-by-case basis. Most effects on riparian/wetland vegetation would be long term, resulting in the removal of vegetation, disruption or restriction of channel form, disruption of drainage patterns, surface and subsurface flows, and the loss or constriction of floodplains. The degree of effect would depend on the extent of the project within the riparian/wetland system. After surface disturbance, rehabilitation would concentrate on restoring riparian/wetlands to PFC.

Off-Highway Vehicles. Seasonal as well as permanent road, trail, and area closures for OHV and mechanized vehicle use would affect riparian/wetland vegetation by limiting off-road travel during the time soils would be saturated and have the greatest erosion potential. Current OHV and mechanized vehicle use could continue to affect riparian/wetland resources on a site-specific and a watershed basis, resulting in soil disturbance, compaction, erosion, and vegetation removal. Organized events would only be authorized if they would have no direct effects on riparian/wetland resources and would be consistent with other resource values.

Recreation. Recreational use could result in localized disturbance to riparian and wetland vegetation and soil compaction, thereby causing erosion and sediment production and reducing shade. Intensive management of some areas could provide greater protection for water resources through more immediate identification and resolution of conflicts between recreation and other resources.

4.5.1.3.3 Alternative B

Direct Effects

Natural processes would be emphasized in the maintenance and restoration of riparian/wetland areas to achieve or progress toward attainment of an advanced ecological status. Active restoration would be limited to reaches/sites that would not likely achieve or progress toward attainment of advanced ecological status within the RMP goal timeframe of 20 to 50 years.

Beaver populations would be managed as in Alternative A, with the same effects.

Indirect Effects

Woodlands. Reliance on naturally ignited fire to reduce juniper in riparian/wetland areas could result in continued and increased suppression of riparian vegetation distribution and abundance, decreasing opportunities for maintaining or restoring riparian/wetland vegetation resources. Reduced emphasis on juniper and other vegetation removal and prescribed fire in the uplands could affect riparian/wetland vegetation by modifying watershed capabilities to capture and store precipitation. This may result in increased runoff and reduced ground water contributions to riparian vegetation.

Rangelands. Natural processes would be allowed to determine rangeland vegetation communities. Where existing or future rangeland vegetation communities adjacent to riparian/wetland areas would be dominated by annual species (e.g. cheatgrass), which alter community stability and fire cycles, the density and distribution of riparian vegetation may be suppressed by fire.

Noxious Weeds. Noxious weed management would be limited to treating only high priority areas. The lack of emphasis on protection of riparian/wetland resources in areas that would not be high priority BLM administered lands, or on adjacent private property, could affect riparian/wetland vegetation, bank protection, and flood control where noxious weed introductions occur. Emphasis on manual and biological controls would be preferred, which may limit the effectiveness of control treatments of noxious weeds in riparian/wetland habitats.

Fish and Wildlife. The effects of the action to improve/restore fish and wildlife habitat would be similar to Alternative A except that progress toward improvement may be at a slower rate due to use of mainly passive methods.

Energy and Minerals. The effects of energy and mineral exploration, location, development, and production would be least under this alternative, as the entire Planning Area would be recommended for withdrawal from locatable mineral entry and designated as closed to energy leasing.

Wild Horses and Burros. Wild horse use would affect riparian/wetland sites the same as Alternative A. New spring/water developments would be implemented as necessary to sustain healthy viable herds, which could affect riparian/wetland vegetation by trampling and vegetation removal at those sites.

The effect of reducing the acreage in the Kiger HMA would be the same as described in Alternative A. The effects of reducing the acreage in the South Steens HMA by eliminating that part of the current HMA in the No Livestock Grazing Area while retaining the same AML would increase horse use in riparian areas and increase the possibility of reduction of riparian vegetation, decreased bank stability, and loss of PFC.

Management activities that restore riparian/wetland areas may require fencing to prevent trampling and grazing of planted materials.

Grazing Management. Elimination of grazing in the AMU and emphasis on nonconsumptive use in the CMPA would promote maintenance and restoration of riparian/wetland vegetation.

Wildland Fire Management. The same as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use would have little effect on riparian/wetland resources. Maximizing both seasonal and permanent road, trail, and area closures to OHV and mechanized vehicle use would affect riparian/wetland vegetation by limiting off-road travel in uplands and riparian/wetland areas, particularly when soils would be saturated and have the greatest erosion potential. Overall, the limitations and closures throughout the Planning Area would reduce the effects of OHV and mechanized vehicle use on riparian/wetland vegetation and resources.

Recreation. Minimal recreation management could reduce recreation opportunities and use through much of the Planning Area. Reduced use could result in less localized disturbance to riparian and wetland vegetation, thereby increasing aquatic habitat cover and shade. Minimal recreational management may provide less protection for water resources, as conflicts between recreation and resources may be less likely to be identified and resolved.

4.5.1.3.4 Alternative C

Direct Effects

Riparian/wetland vegetation would be maintained or restored to an advanced ecological status through active and/or passive control of uses, such as livestock grazing and recreation, and development and implementation of restoration measures.

Beaver populations would be allowed to expand naturally as in Alternatives A and B, with the same effects. In addition, beaver would be reintroduced into suitable habitat. Since reintroduction areas would have suitable habitat for beaver, increases in vegetative utilization would be sustainable. The effects of reintroduction would therefore tend to include expansion of riparian vegetation, improved streambank stability, and increased cover and habitat complexity.

Indirect Effects

Woodlands. Juniper and other vegetation removal using prescribed fire and mechanical removal in the uplands and in riparian habitats would affect riparian/wetland vegetation the same as Alternative A.

Rangelands. Native rangeland plant communities would be maintained or improved with emphasis toward attaining ecological status and minimizing commodity production. Native plant communities would increase in range and distribution, thereby reducing erosion and improving conditions for streams and riparian/wetland habitats.

Wildland fire would be implemented to promote ecologically desirable traits in rangeland and riparian/wetland communities. The effects would be the same as Alternative A.

Mechanical removal of woody vegetation to create a mosaic of successional stages in rangeland and riparian vegetation would have effects similar to Alternative A, though lower in magnitude, since emphasis would only be on selected sites

Noxious Weeds. Continued public education and cooperative partnerships for the control of noxious weeds would improve riparian/wetland conditions, resulting in bank protection and flood control. Reducing the competition for water and nutrients would improve the ground cover, promoting perennial species with better soil-holding capabilities than noxious weeds and other invasive species. Noxious weed management under this alternative emphasizes and prioritizes the eradication of a greater number of noxious weeds sites within the Planning Area, potentially reducing competition and habitat degradation in riparian/wetland habitats.

Fish and Wildlife. The effects of the action to improve and/or restore fish and wildlife habitat would be similar to Alternative A except that progress toward improvement could be quicker with the emphasis on protection of natural values.

Energy and Minerals. The effects of energy and mineral exploration, location, development, and production would be limited to areas where natural values would not be impaired by surface disturbance. The limitations would be similar for oil and gas leasing, and geothermal energy. Permits would be considered on a case-by-case basis, with no permits allowed in ACECs, BLM administrative sites, recreational sites, potential recreational sites, listed cultural sites, important paleontological sites, areas containing special status species and their habitat, and within 0.6 mile of sage-grouse leks. The limitations and restrictions to mining in these areas reduce the number of acres open to surface disturbances and the potential for effects to riparian/wetland vegetation under this alternative.

Wild Horses and Burros. Spring development and maintenance of water for wild horses would have the same effects as Alternative A.

The effects of decreases in the acreage of the Kiger HMA on riparian areas would be as described in Alternative A. The effects of the decrease in acreage of the South Steens HMA would be the same as described in Alternative B.

Grazing Management. Grazing and rangeland project implementation effects on riparian/wetland areas would be site-specific, and would be adjusted to improve riparian/wetland resources in many portions of the Planning Area by managing vegetation and stream channel improvements. Emphasis for grazing management under this alternative would be on nonconsumptive uses in the AMU and the CMPA, potentially reducing the effects on riparian/wetland resources from the current uses (Alternative A). Removal of projects and rehabilitation of project sites that do not function, would be emphasized to enhance resource values, including riparian/wetland resources. Permitted use in vacant allotments with resource conflicts could be discontinued, reducing the potential for effects on riparian/wetlands within or adjacent to those allotments.

Wildland Fire Management. Same as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use would be managed for minimal use in accordance with limited and closed OHV designations, thereby reducing the effects on riparian/wetland vegetation. OHV and mechanized vehicle use could degrade riparian/wetland resources on a site-specific basis, resulting in compaction, erosion, and vegetation removal. Organized events would be authorized only on designated routes in areas designated as limited to designated roads, ways and trails, thereby reducing the potential effects on riparian/wetland resources.

Recreation. Recreational use could result in increased localized disturbance to riparian and wetland vegetation and soil compaction, thereby increasing erosion and sediment production and reducing shade. Intensive management of some areas could provide greater protection for water resources through more immediate identification and resolution of conflicts between recreation and other resources, while conflicts between recreation and resources may be less likely to be identified and resolved in other, less intensively managed areas.

4.5.1.3.5 Alternative D

Direct Effects

Riparian/wetland vegetation would be maintained or restored at a range of ecological conditions depending on site/reach specific objectives, such as those prescribed for special status species habitat and/or water quality requirements. Riparian/wetland vegetation would be maintained or restored at least to a level adequate to maintain or progress toward PFC. However, the majority of perennial streams in the Planning Area on public lands would be associated with special status fish, CWA 303(d) listed waters, wilderness and/or WSRs, and would be maintained or restored to a late or advanced ecological status through active and/or passive management.

Beaver populations would be managed as in Alternative C. However, this alternative would also allow for the removal of beaver if suitable habitat would not be available or if economic harm or ecological damage would be occurring. In areas, where natural expansion of beaver into unsuitable riparian habitat (i.e., incapable of sustaining increased utilization) occurs, removal of beaver through recommendations to the ODFW, could result in increased riparian vegetation density, with resulting improvements in aquatic habitat. In areas where natural expansion of beaver into suitable riparian habitat (i.e., capable of sustaining increased utilization) occurs but beaver would be removed to reduce economic harm, changes to riparian vegetation and aquatic habitat associated with beaver would not occur.

Indirect Effects

Woodlands. Juniper and other vegetation removal using prescribed fire and mechanical removal in the uplands and in riparian habitats would affect riparian/wetland vegetation the same as Alternatives A and C.

Rangelands. Native rangeland plant communities would be maintained or improved as in Alternative A with the same effects, with emphasis toward attaining ecological status and minimizing commodity production.

Both prescribed and wildland fire would be implemented to promote ecologically desirable traits in rangeland and riparian/wetland communities. The effects would be similar to Alternative A, though distributed through a greater portion of the Planning Area.

Mechanical removal of woody vegetation to create a mosaic of successional stages in rangeland and riparian vegetation would have the same effects as Alternative A.

Noxious Weeds. Continued public education and cooperative partnerships for the control of noxious weeds would have the same effects as Alternative A, with management emphasis on treating areas with high quality natural resource values.

Fish and Wildlife. The effects of the action to improve and/or restore fish and wildlife habitat would be similar to Alternative A.

Energy and Minerals. The effects of energy and mineral exploration, location, development, and production would vary, depending on the location and degree of disturbance, the proximity to riparian/wetland resources, and the need to develop roads that would disturb riparian/wetland sites. Permits would be considered on a case-by-case basis, with no permits allowed in ACECs, BLM administrative sites, recreational sites, potential recreational sites, listed cultural sites, important paleontological sites, areas containing federally listed species and their habitat, and within 0.6 mile of sage grouse leks. No new areas would be closed to oil and gas leasing and geothermal energy development, which could potentially cause ground disturbances and indirectly or directly affect riparian/wetland vegetation. Effects caused by ground disturbance and other related site effects for mineral and energy development activities could increase erosion, remove riparian/wetland vegetation, potentially release contaminants that would affect riparian/wetland vegetation and resources (invertebrate and fish habitat), and alter drainage patterns by site and road development. Dewatering of streams and ground water for mineral extraction and/or production would degrade riparian/wetland vegetation and reduce stream flows.

Wild Horses and Burros. Spring development and maintenance would have the same effects on riparian/wetland areas as Alternative A, with management emphasis on riparian/wetland resource objectives.

The effect of reducing the acreages in the Kiger and South Steens HMAs would be the same as described in Alternative A.

Grazing Management. Grazing management would continue toward improved riparian/wetland conditions while providing sustainable livestock grazing. Grazing and rangeland project implementation effects on riparian/wetland areas would be adjusted to improve riparian/wetland resources in many portions of the Planning Area, based on evaluations and rangeland health assessments that would determine allowable AUMs and plant community management.

Wildland Fire Management. Same as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use would be cooperatively managed in accordance with OHV designations. Seasonal, and permanent, road, trail, and area closures for OHV and mechanized vehicle use would affect riparian/wetland vegetation by limiting off-road travel during the time soils would be saturated and have the greatest erosion potential. OHV and mechanized vehicle use (including all-terrain vehicles and snowmobiles) within designated

areas would be encouraged, which would affect riparian/wetland resources on a site-specific basis, and the watershed due to soil compaction, erosion, and vegetation removal in the uplands. There would be less effect to the Alvord Desert under this alternative than Alternative A, but greater effect to the Planning Area than Alternatives B and C.

Recreation. The effects would be the same as in Alternative C.

4.5.1.3.6 Alternative E

Direct Effects

Same as Alternative D.

Indirect Effects

Woodlands. Management emphasis for juniper and other vegetation removal, and prescribed fire in the uplands would be actively prescribed under this alternative, which would have the same effects on riparian/wetland vegetation as Alternative C. Maximizing juniper removal for fuel by-products would increase both short-term and long-term effects to riparian/wetland vegetation as described under Alternative A. As in Alternative B, fire would be allowed in quaking aspen and mountain mahogany stands and in riparian/wetland habitats, with the same effects.

Juniper and other woody vegetation removal using prescribed fire and mechanical removal in the uplands and in riparian habitat would affect riparian/wetland vegetation the same as Alternative A.

Rangelands. Maintenance of native rangeland plant communities would not be emphasized under this alternative. Many native plant communities would be converted to nonnative, potentially degrading riparian/wetland vegetation, community structure, diversity, and health.

Both prescribed and wildland fire would be implemented to promote ecologically desirable traits in rangeland and riparian/wetland communities with the same effects as Alternative D.

Mechanical removal of woody vegetation would be implemented to release suppressed, desirable herbaceous vegetation, but the effects would be similar to Alternative A.

Noxious Weeds. Management of noxious weeds would be similar to Alternative A, with emphasis on treatment of high quality natural resource areas. Riparian/wetland effects would be similar to Alternative A.

Fish and Wildlife. The effects of the action to improve and/or restore fish and wildlife habitat would be similar to Alternative A except that progress toward improvement may be slower or remain static due to the emphasis on commodity production. In the long term, improvements to fish and wildlife habitat would be observed, but the time frame for those improvements may be longer than the life of this RMP.

Energy and Minerals. The maximum amount of land would be available for locatable mineral exploration and development, and would have the greatest potential for degradation of riparian/wetland resources under all of the alternatives. The need to develop roads and production facilities would potentially disturb riparian/wetland vegetation, and increase erosion and sediment deposition into water bodies. All areas would be considered for surface occupancy, unless restricted by current laws or regulations, including ACECs, BLM administrative sites, recreational sites, potential recreational sites, listed cultural sites, important paleontological sites, areas containing special status species, and within 0.6 mile of sage-grouse leks. No seasonal stipulations to protect wildlife or maintain roads would be implemented, which would potentially degrade riparian/wetland vegetation and other natural resource values. Saleable minerals development would be permitted throughout the Planning Area on a case-by-case basis, except where closed by Congressional act. No areas would be closed to oil and gas leasing or geothermal energy development, which could potentially increase ground disturbances, and indirectly or directly affect riparian/wetland vegetation. Actions resulting in ground disturbance for mining and energy development activities (e.g., site and road development) would increase erosion, remove riparian/wetland vegetation, potentially release contaminants that could affect riparian/wetland vegetation, wildlife, and water quality, and alter drainage patterns. Dewatering of streams and ground water for mineral extraction and/or production would degrade riparian/wetland vegetation and reduce stream flows. This alternative has the greatest potential for degrading riparian/wetland and other resources from mineral and energy development.

Wild Horses and Burros. Spring development and maintenance would have the same effects on riparian/wetland areas as Alternative A, with management emphasis on commodity production such as livestock grazing while meeting other natural resource objectives. Wild horse use could increase at these sites, potentially increasing the effect on riparian/wetland vegetation and resources, including compaction, soil disturbance, vegetation community degradation, increased erosion, and bank deterioration. This would be the case if the South Steens HMA would be expanded to include the Dry Creek and Big Springs pastures of the Fish Creek-Big Indian Allotment, Serrano Point and Carlson Creek Allotments and the Bone Creek and Miners Field pastures of the Alvord Peak Allotment. Although wild horse use could be reduced on riparian areas in other parts of the HMA, many riparian areas in these allotments would be in PFC or FAR with a static or upward trend while some would be nonfunctional. Year long use by wild horses in this area would make achievement or maintenance of PFC in riparian areas and a thriving ecological balance an unrealistic goal. Existing fences on the north end of this area would not be substantial enough to keep wild horses from roaming to the north into Wild Horse Canyon and further north on the east side of the Steens to Mann Lake Ranch. This could affect riparian areas along streams that contain Lahontan cutthroat trout. The effect of reducing the acreage in the Kiger HMA would be the same as described in Alternative A.

Grazing Management. Grazing and rangeland project implementation effects on riparian/wetland areas would be managed by accepted livestock management practices in order to meet riparian/wetland resource and other resource objectives. The greatest potential for effects to riparian/wetland vegetation and resources would result from this alternative, which emphasizes livestock grazing; however, this would likely result in additional mitigating infrastructure such as fencing and off-channel water developments to control livestock access to riparian areas.

Wildland Fire Management. The same as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use would be managed for maximum use except in areas designated as closed or limited to designated or existing roads, ways, or trails, in compliance with existing laws, regulations, and policies. OHV and mechanized vehicle use organized events would be encouraged, which could affect riparian/wetland vegetation and soil resources on a site-specific and watershed basis, resulting in soil compaction, erosion, and vegetation removal.

Recreation. The effects would be the same as in Alternative C.

4.5.1.4 Summary of Effects

Riparian/wetland vegetation and associated wildlife habitats would continue to improve under Alternative A at a relatively slow rate while allowing for the continuation of commodity uses including livestock, transportation, and recreation. Management would continue on a case-by-case basis on a site-specific level with less emphasis on watershed scale effects. The major effects on riparian/wetland vegetation result from wildland fire (short-term effect), lack of aggressive juniper and vegetation removal (long-term effect), and noxious weed introductions. The management goals would not be achieved under this alternative within the timeframe of the RMP unless management prioritizes the restoration of riparian/wetland areas to restore PFC on streams that are currently functionally at risk, nonfunctioning, and in poor condition.

Alternative B would likely affect riparian/wetland vegetation by allowing natural processes to determine the outcome of habitat conditions, thereby resulting in currently nonfunctioning riparian systems possibly not reaching PFC during the life of this plan. Without active restoration, functionally at risk and nonfunctioning streams and riparian/wetland systems could potentially stay static, thereby not improving to PFC or achieving an advanced ecological state. Watershed scale effects would progress toward natural recovery in the uplands, but increased noxious weeds, invasive species, juniper, and other competing or decadent vegetation could continue to affect riparian/wetland vegetation in some locations due to a reduction of prescribed fire and mechanical removal of vegetation, and due to emphasis on allowing natural processes to determine resource conditions. The management goals for riparian/wetland vegetation may be achieved on many sites by allowing natural processes to determine the habitat conditions under this alternative.

Alternative C would have fewer effects on riparian/wetland vegetation condition than Alternatives A and B, with more management emphasis on watershed restoration of degraded systems and maintenance of those systems functioning at a high level of condition. Watershed scale restoration would result in more stable conditions over time. Recovery rates for riparian/wetland vegetation would require more time to achieve the DRC than Alternative D. Slower recovery rates for the restoration of watershed function and processes would result in a reduction in the improvements to riparian/wetland vegetation in the short term. Active management emphasis for prescribed fire and juniper removal

would be implemented to restore natural conditions to uplands and riparian/wetland habitats. The management goals and objectives for riparian/wetland vegetation would likely be achieved under this alternative.

Under Alternative D, which emphasis protection and restoration of natural values while providing for multiple resource management, recovery rates would be accelerated and would result in improved riparian/wetland vegetation condition. Watershed scale restoration would result in more stable conditions. Prescribed fire management strategies for weeds, juniper, and other vegetation would be the most aggressive under this alternative. With a more aggressive fire rehabilitation program than Alternatives A, B, and C, the long-term benefits from wildland and prescribed fire activities could be used to restore nonfunctioning riparian/wetland sites. The increase in commodity uses, including livestock, transportation, and recreation would have more effects on riparian/wetland vegetation than Alternatives B and C. However, the management emphasis to protect and restore natural values would allow for more opportunities to mitigate, restore, and enhance riparian/wetland vegetation where a project affects those resources.

Effects from Alternative E would be similar to Alternative A, with an increase in commodity uses resulting in a greater effect on riparian/wetland vegetation. Minimally acceptable conditions would be required and mitigation would occur on a case-by-case basis rather than on a watershed scale. While improvements would occur, they would be prioritized to emphasize commodity uses and not natural resource values, and improvements would take longer and be less extensive than Alternatives A or D. Noxious weed management would emphasize protection of commodity resources rather than watershed resources, which could affect riparian/wetland vegetation. Juniper and other vegetation removal would be more aggressive under this alternative than Alternatives A, and B, which could have a beneficial effect on riparian/wetland vegetation. The management goals and objectives for riparian/wetland vegetation would not likely be achieved under this alternative, and would occur at a slower rate than Alternatives A, C, and D due to the emphasis on commodity production and public uses.

4.5.1.5 Cumulative Effects

Cumulative effects to riparian/wetland vegetation would be habitat loss, destruction, conversion, and loss of habitat connectivity. This loss of habitat has resulted from upstream effects, channel alterations, road construction, flooding, noxious weed introductions, upland vegetation degradation, and eroded soils. Effects caused from activities implemented on private lands adjacent and/or upstream create additional cumulative effects to BLM-authorized actions.

OHV use, grazing or other activities that create soil disturbance and compaction can increase runoff, erosion, and sediment transport, resulting in degradation of riparian/wetland vegetation.

The loss of habitat due to noxious weed introductions could cause severe effects to riparian/wetland vegetation, special status species, and wildlife species using these habitats. Integrated weed management would be essential in protecting these habitats from noxious weeds and undesirable plant introductions and establishment.

Any actions that cumulatively affect watershed function would ultimately affect riparian/wetland vegetation. The cumulative effects that have created the current conditions would be reversed as rangeland health improvement projects have been, and would continue to be implemented. The cumulative effect of these projects over time would be returning riparian/wetland systems to improved fish, wildlife, and aquatic habitat conditions.

4.5.2 Woodlands

4.5.2.1 Goals and Objectives

Goal 1 - Maintain and improve integrity of old-growth juniper woodlands.

Objective 1. Maintain or improve characteristics of old-growth juniper woodlands. Reduce the influence of post-settlement western juniper trees in old-growth western juniper woodlands.

4.5.2.2 Assumptions

Old growth western juniper woodlands would be defined by a set of characteristics related to the individual tree and the group of trees in the stand. The trees generally have a nonsymmetrical appearance, with rounded, spreading canopies. Individual branches or entire portions of the canopy may senesce, giving the canopy a sparse, open appearance. Trunks become irregular in shape, with severe taper. Deep furrows develop in the trunk and bark begins to take on a fibrous

appearance. Bright green lichen can be found on the branches and upper portions of the trunks. Historically, these stands were found on rocky ridge tops and areas where soil development was minimal. Therefore, these areas burned at a lower frequency than adjacent plant communities. Fires were limited to individual trees or small patches following lightning strikes.

Cutting in old-growth western juniper stands would be done primarily by chainsaws. The rocky soils and steep slopes common to these stands makes the use of large mechanized equipment unlikely.

4.5.2.3 Analysis of Alternatives

4.5.2.3.1 Effects Common to All Alternatives

Direct Effects

Cutting with chainsaws would have the lowest soil disturbance of all treatment methods. However, the amount of soil disturbance caused by mechanized equipment would be minimal due to the rocky surface soil conditions. Disturbance could be further reduced by working larger equipment over dry or frozen soils.

Indirect Effects

Air Quality. The BLM would work cooperatively with other federal, state and local governments to manage air quality. Dust and smoke from woodland management and wildland fire activities could have detrimental short-term effects on air quality. However, long-term impacts would be negligible to nonexistent.

Soils and Biological Soil Crusts. BMPs would be followed to prevent degradation of the soil biological crust community. Soil biological crusts would be monitored to evaluate the impacts of treatment. Identification of soil biological crusts within a project area could require that tree removal occur when soils were dry, minimizing impacts.

Special Status Species. Manage special status plant and animal species and their habitats so management actions do not contribute to their decline or listing as T&E species. Prior to treatment, the proposed treatment area would be surveyed for special status plant and animal species. Identification of special status species could alter the treatment method, or timing in order to reduce the effect of treatment on special status species.

Paleontological Resources. Identify significant localities where paleontological resources may be in conflict with other resource uses. Prior to treatment, the potential for paleontological resources would be evaluated. If paleontological resources would be found, treatment actions would be designed to protect these resources from damage.

Cultural Resources. Identify significant localities where cultural resources may be in conflict with other resource uses. Prior to treatment, the potential for cultural resources would be evaluated. If cultural resources were found, treatment actions would be designed to protect these resources from damage.

Native American Traditional Practices. Consult with the Burns Paiute Tribe on all management actions. The Burns Paiute Tribe would be informed of treatment areas. Project objectives would consider tribal and other interests.

Visual Resources. Designation of the Wilderness, WSAs, and other areas as VRM Class I would limit the type and pattern of any cutting that could be done in these areas.

4.5.2.3.2 Alternative A

Direct Effects

Fires are a rare event in old growth western juniper stands. However, the relatively recent increase in post-settlement western juniper has increased the risk of wildfire in these older stands. Increases in western juniper stand density and cover would also reduce the understory cover of herbaceous and woody plants. Suppression of fires in these stands would allow the continued establishment of younger trees at the expense of the understory vegetation. Tree density and cover would continue to increase, further reducing understory vegetation. The increase would continue until tree intraspecific competition would be severe enough to limit additional western juniper growth and establishment. Stands in this condition would be at an elevated risk of wildfire and post-fire response would be limited due to the loss of understory plant species. Wildfire intensity and severity would be greater than historic conditions because of the increase in tree

cover and density. A larger number of older trees would be lost due to the potential for larger fires in these old growth stands. In areas targeted for cutting, removal of all post-settlement western juniper from old growth stands would limit replacement of ancient trees that senesce or individuals killed by lightning or fire.

Indirect Effects

Noxious Weeds. Identification and control of noxious and other invasive species. Control of noxious and other invasive species could help native plant restoration following cutting of younger trees. However, bare ground may be maintained for a longer period than if weeds were allowed to establish.

Wildlife and Wildlife Habitat. Maintenance, restoration, or improvement of wildlife habitat in old growth western juniper stands may retain a greater cover and density of western juniper in these stands than the site would be capable of sustaining. Maintaining cover for big game could increase mortality of trees established prior to 1870. Especially susceptible to greater levels of competition would be the very old trees with partially live canopies. Loss of these trees could reduce the number of cavity nesting sites affecting birds and mammals that utilize those sites.

Wildland Fire Management. All wildland fires would be suppressed with the appropriate management response. Continued suppression of fires would permit young western juniper to establish and increase in old growth. Shrubs and herbaceous understory plants would be replaced by younger western juniper. Bare ground would be increased by the reduction in understory plants. Rehabilitation following wildfire would utilize native and desirable introduced plant species. However, the small size of these old growth stands and inherently shallow, rocky surface conditions limit the fire rehabilitation options.

Social and Economic Values. Contracts to cut younger western juniper trees from the old growth stands would be made available to local residents. Partnerships would be sought with adjoining private land owners. This would allow treatment areas to be designed based on biophysical boundaries and not geopolitical boundaries.

4.5.2.3.3 Alternative B

Direct Effects

Post-settlement western juniper trees would continue to establish and grow in the old growth stands. Cover and density of western juniper would increase as the younger trees grow. Risk of wildfire would increase with the increasing tree cover. Wildfire intensity and severity would be greater than historic levels in these stands. Prior to establishment of post-settlement trees, fire was limited to single trees or small areas within the stand.

Mortality rates of ancient trees would increase due to intraspecific competition. The amount of standing and dead woody material would increase.

Fires would not be suppressed in these stands. Where post-settlement trees have established and dominate the stand, fires would burn at greater intensity and severity. Acreage burned and number of ancient trees lost to fire would be greatest in this alternative.

Increased tree cover and density of post-settlement trees would occur at the expense of the associated understory vegetation. As understory vegetation cover declines, the amount of bare ground and risk of soil erosion increase. This effect would be exacerbated by burning.

Indirect Effects

Noxious Weeds. Identification and control of noxious and other invasive species would occur. Only high priority areas would be treated. Manual and/or biological control methods would be utilized. Bare ground may be maintained for the period of time between weeds reduction/removal and native plant establishment.

Wildlife and Wildlife Habitat. Maintenance, restoration, or improvement of wildlife habitat in old growth western juniper stands may retain a greater cover and density of western juniper in these stands than the site would be capable of sustaining. Maintaining cover for big game could increase mortality of trees established prior to 1870. Especially susceptible to greater levels of competition would be the very old trees with partially live canopies. Loss of these trees could reduce the number of cavity nesting sites affecting birds and mammals that utilize those sites.

Wildland Fire Management. Naturally ignited wildland fires that do not threaten human life, private property or significant resource values would be evaluated and managed for resource benefits. Shrubs and herbaceous understory plants would be replaced by younger western juniper. Bare ground would be increased by the reduction in understory plants. Fire suppression actions would utilize Minimum Suppression Tactics, and a minimum tool analysis would be conducted on suppression actions. Rehabilitation following wildfire would utilize native and desirable introduced plant species. However, the small size of these old growth stands and inherently shallow, rocky surface conditions limit the fire rehabilitation options.

4.5.2.3.4 Alternative C

Direct Effects

Post-settlement western juniper trees would be cut in old growth stands, but up to ten percent of these trees would be left to replace dead and dying trees. The exact number of trees left uncut would be based on site-specific stand characteristics and mortality. Disturbance to soils and the associated understory plant community in this alternative would be lower than Alternatives A and E.

Removal of the majority of the post-settlement trees would help to reallocate resources to the understory plant community. Cover and density of understory plants would increase, reducing the size and extent of bare ground patches. Reduction in post-settlement western juniper would also help to reduce live fuel loading and the potential for stand-replacement fires in the old growth stands.

Indirect Effects

Noxious Weeds. Same as Alternative A.

Wildlife and Wildlife Habitat. Same as Alternative A.

Wildland Fire Management. Similar to Alternative A except; leaving younger trees in the plant community could increase the fuel available to burn and provide fire a ladder to reach the canopy of older trees. Fires that occur within these stands could be larger than in Alternative A where all younger trees would be removed.

Social and Economic Values. Contracts to cut younger western juniper trees from the old growth stands would be made available to local residents. Partnerships would be sought with adjoining private land owners. This would allow treatment areas to be designed based on biophysical boundaries and not geopolitical boundaries.

4.5.2.3.5 Alternative D

Direct Effects

Direct effects of Alternative D would be similar to Alternative C with the following exceptions.

Development of markets for by-products of mechanical treatments would help boost the economy of Harney County. The amount of material generated from the old-growth stands would be minimal, but when added to other areas, could help to create jobs and increase economic activity in the county.

Indirect Effects

Noxious Weeds. Same as Alternative A.

Wildlife and Wildlife Habitat. Same as Alternative A.

Wildland Fire Management. Wildland fires in western juniper woodlands within the WUI would be suppressed with the appropriate management response. Suppression actions would also be initiated on fires that threaten human life, private property or significant resource values. Continued suppression in these areas would permit young western juniper to establish and increase in old growth. Shrubs and herbaceous understory plants would be replaced by younger western juniper. Young western juniper would continue to increase density and cover in the understory of older trees. Bare ground would be increased by the reduction in understory plants. The more dense woodland structure would increase the risk of stand-replacing fire in the old growth stands. Rehabilitation following wildfire would utilize native and

desirable introduced plant species. However, the small size of these old growth stands and inherently shallow, rocky surface conditions limit the fire rehabilitation options.

Social and Economic Values. Same as Alternative A.

4.5.2.3.6 Alternative E

Direct Effects

Direct effects of mechanical treatments in Alternative E would be the same as in Alternative A.

Direct effects of fire management in Alternative E would be similar to Alternative C with the following exceptions. Areas burned in old-growth stands would be seeded to plant species that maximize forage production.

Direct and indirect effects of market development of by-products from mechanical treatments would be the same as Alternative D.

Indirect Effects

Noxious Weeds. Same as Alternative A.

Wildlife and Wildlife Habitat. Same as Alternative A.

Wildland Fire Management. Wildland fires in western juniper woodlands within the WUI would be suppressed with the appropriate management response. Suppression actions would also be initiated on fires that threaten human life, private property or significant resource values. Continued suppression in these areas would permit young western juniper to establish and increase in old growth. Shrubs and herbaceous understory plants would be replaced by younger western juniper. Young western juniper would continue to increase density and cover in the understory of older trees. Bare ground would be increased by the reduction in understory plants. The more dense woodland structure would increase the risk of stand replacing fire in the old growth stands. Rehabilitation following wildfire would utilize desirable forage species to maximize forage production. Recovery of native grasses and forbs would be slowed by the seeding of forage species. However, the small size of these old growth stands and inherently shallow, rocky surface conditions limit the fire rehabilitation options.

Social and Economic Values. Provide for commodity production to the maximum extent allowed under the Steens Act. Cut western juniper would be made available for use by industry and the public. Removal of this material would increase the travel into theses stands.

4.5.2.4 Goals and Objectives

Goal 2 - Maintain, restore, or improve the integrity of quaking aspen and mountain mahogany stands/groves.

Objective 2. Reduce the influence of western juniper and other associated woody plant species in quaking aspen and mountain mahogany stands/groves.

4.5.2.5 Assumptions

Western juniper has encroached into the majority of the quaking aspen stands below 7,500 feet in elevation. The encroachment would be most severe within the CMPA. Encroachment of western juniper has amplified the reduction in quaking aspen stands that would be occurring across the western United States. Quaking aspen stands comprise less than one percent of the total landscape in the Andrews RA, but they would be critically important to numerous wildlife species and contain many unique plant species and assemblages. Encroachment of western juniper into quaking aspen stands has not been observed to the same degree above 7,500 feet or in the Pueblo or Trout Creek Mountains. However, the stands in those areas reflect a general decline in quaking aspen common across the western United States. Fire suppression and subtle climatic shifts would be identified as the major causal factors.

Mountain mahogany stands occupy a small area within the Andrews RA, but would be important for many wildlife species, similar to quaking aspen. However, these woodlands would be commonly found on rocky ridge tops and shallow

soil areas. Reduction in fire frequency and past management has allowed western juniper to establish in these stands. Western juniper would eventually overtop the mountain mahogany and eliminate it from the community. Mountain mahogany does not sprout following top removal.

4.5.2.6 Analysis of Alternatives

4.5.2.6.1 Effects Common to All Alternatives

Air Quality. Manage wildland fires to avoid degradation of the airshed. The BLM would work cooperatively with other federal, state and local governments to manage air quality. Dust and smoke from woodland management and wildland fire activities could have detrimental short-term effects on air quality. However, long-term impacts would be negligible to nonexistent.

Noxious Weeds. Treat noxious weeds and inventory new introductions using the most effective means available. Prior to mechanical treatment or application of fire to an area, the presence or absence of noxious weeds would be noted and the appropriate weed control treatment applied. Monitoring for the persistence of identified noxious weeds would continue for up to five years following treatment. Areas where there would be a large population of noxious weeds would not be treated until effective weed control could occur or other resources issues were decided to be more severe (e.g., soil loss).

Special Status Species. Manage special status plant and animal species so management actions do not contribute to their decline or listing as T&E species. Presence or absence of special status species would be noted in proposed project areas. Timing and/or method of management action would be prescribed that does not contribute to decline or listing of identified special status species.

Paleontological Resources. Identify significant localities where paleontological resources may be in conflict with other resource uses. Prior to treatment, the potential for paleontological resources would be evaluated. If paleontological resources were found, treatment actions would be designed to protect these resources from damage.

Cultural Resources. Identify significant localities where cultural resources may be in conflict with other resource uses. Prior to treatment, the potential for cultural resources would be evaluated. If cultural resources were found, treatment actions would be designed to protect these resources from damage.

Native American Traditional Practices. Consult with the Burns Paiute Tribe on all management actions. The Burns Paiute Tribe would be informed of treatment areas. Project objectives would consider tribal and other interests.

Social and Economic Values. Work cooperatively with public land users consistent with resource objectives. Cooperative projects would be sought with adjacent private land owners. Management decisions would be based on watershed and subwatershed boundaries and not ownership boundaries. This would help to make management action more economical for public and private land managers.

Visual Resources. Designation of the Wilderness, WSAs, and other areas as VRM Class I would limit the type and pattern of any cutting that could be done in these areas. VRM class designations would not affect the use of wildfire or prescribed fire. Any other actions associated with aspen and mahogany management would be designed to meet the appropriate VRM class of the area to be treated.

4.5.2.6.2 Alternative A

Direct Effects

Removal of western juniper from lower elevation quaking aspen and mountain mahogany stands would release resources for quaking aspen and mountain mahogany growth. Trees cut and left in place would provide some physical protection for new and existing plants. However, many western juniper less than three feet tall would remain in the plant community. Uncut western juniper would also benefit from removal of overstory trees. Minor soil surface disturbance would occur during the cutting if chainsaws were used. Limited suckering would occur following cutting, especially if quaking aspen would be also cut. Seedling establishment of mountain mahogany would be encouraged, with some degree of soil disturbance. Falling of western juniper may damage quaking aspen and mountain mahogany plants. Herbaceous and other woody understory vegetation cover would increase following cutting.

In stands where many western juniper saplings and seedlings exist, prescribed fire would kill these individuals. Quaking aspen suckering would be greatly favored by burning. However, areas with large accumulations of cutting slash may generate enough heat at the soil surface to reduce suckering. Burning when soil moisture would be high and/or over frozen soils would reduce the effects of burning, but also reduce consumption of slash.

Burning in mountain mahogany stands would also kill mature mahogany. Slash could be removed from the site or burned during periods of high soil moisture. Cool temperatures would reduce the loss of mountain mahogany, similar to quaking aspen stands.

Burning would increase the amount of bare ground exposed. Increased bare ground may favor establishment of mountain mahogany. Establishment of mountain mahogany would be increased in areas where bare ground would be present because of a hygroscopic awn attached to the seed that helps to drill the seed into the ground.

Suppression of fires in quaking aspen and mountain mahogany stands would permit western juniper to continue to increase density and cover. Sapling and smaller sized western juniper in the understory of quaking aspen and mountain mahogany stands provides ladder fuels for fire to spread into the canopies of the woodlands. Western juniper also contains a higher concentration of volatile oils that increases the flammability of the stand. Fires that do occur would burn with a greater intensity and result in a more severe fire than those of the past. In the absence of fire, existing quaking aspen and mountain mahogany would continue to be out-competed by western juniper, and stand dominance would shift to juniper.

Fencing of stands would protect new seedlings from grazing by large herbivores. Fences would be constructed to limit access by domestic and wild herbivores. Removal of the fence would occur when quaking aspen or mountain mahogany seedlings have grown to the point where browsing by large herbivores would not affect survival.

Indirect Effects

Noxious Weeds. Integrated management for control of noxious weeds would continue with emphasis on disturbed areas such as road ROWs, and recreational sites. Weeds could continue to establish in isolated quaking aspen and mountain mahogany stands because of the concentration on disturbed areas. Many quaking aspen and mountain mahogany stands were located outside of the road ROW and would not be classified as heavily disturbed. Noxious weeds could establish in these isolated stands and not be treated because of the lower priority.

Social and Economic Values. Make contacts for services and sale of products available to local residents. Cut woody material from quaking aspen and mountain mahogany stands could be made available to local residents. Removal of this material could reduce the fuel loading and the effectiveness of prescribed fires. If all woody material would be removed western juniper trees less than 3 feet tall would need to be cut in these stands in addition to the larger trees. These smaller trees would have been killed by the prescribed fire.

Wildland Fire Management. Suppress all fires using the appropriate management actions. Suppression of all fires within the Planning Unit would allow the continued dominance of western juniper in quaking aspen and mountain mahogany stands. Prescribed fire and mechanical treatments would be the only method available to reduce the influence of western juniper in quaking aspen and mountain mahogany stands.

4.5.2.6.3 Alternative B

Direct Effects

Western juniper would continue to increase cover and density in the lower elevation quaking aspen and mountain mahogany stands. Quaking aspen and mountain mahogany would decline at the lower elevation due to increases in western juniper. Associated understory plants would also decline in response to the increases in western juniper. Once western juniper forms a closed woodland in these plant communities, return to pre-encroachment plant communities would require planting of quaking aspen, mahogany, and many of the associated understory species.

Total number of acres burned would decrease in the short term and potentially increase in the long term. Encroachment of western juniper in the understory of quaking aspen and mountain mahogany provides ladder fuels. The flammability of western juniper would also be greater than quaking aspen. Fires that may have had limited potential for spread would

have a greater chance of expanding. Response of quaking aspen to burning would be reduced because of the low vigor of the quaking aspen and mountain mahogany that would be competing with western juniper.

Burned areas would not be fenced for protection from grazing animals. Livestock grazing would continue in part of the CMPA, but would be eliminated from the remainder of the Andrews RA. Large herbivores, domestic or wild, would be drawn to areas where quaking aspen responds to fire. Concentration of these animals in the burned area would slow recovery of quaking aspen and mountain mahogany. Effects could be reduced if quaking aspen or mountain mahogany communities would be part of a larger burn.

Indirect Effects

Noxious Weeds. Treat only high priority areas of noxious weeds to protect natural resource land and adjacent private lands. Manual and biological methods would be the preferred method. High priority quaking aspen and mountain mahogany stands would be treated. The preference of mechanical and biologic control methods could reduce the effectiveness of treatment. Fewer acres could be treated mechanically because of the high labor costs for that method. Biological methods of control have been developed for only a few of the weed species.

Fish and Wildlife. Identify opportunities for improvement/restoration of fish and wildlife habitat through use of wildland fire, and other mainly passive methods. Under this management western juniper would continue to increase and dominate these stands. Habitat for large and small animals would shift from a hardwood woodland to a conifer woodland.

Special Status Species. Let natural processes determine habitat for special status plant species except for management of critical habitat identified in recovery plans for federally listed species. Reliance on natural processes would permit western juniper to increase density and cover in quaking aspen and mountain mahogany stands not burned in wildfire events. Increases in western juniper would favor a small number of neotropical migrant birds, but would discourage a larger number of others. Birds that require cavities to nest would be the most dramatically affected. Quaking aspen provides the only location for cavity nesting species in these areas.

Wildland Fire Management. Suppress fires that threaten human life, private property, or areas of significant resource value. Fires that do not threaten the above factors would be managed for resource benefits. Threats to human life and private property would be for the most part small in quaking aspen and mountain mahogany stands. Historic fire return intervals (average number of years between fire events) for quaking aspen stands would be between 60 and 90 years, and greater than 100 years for most mountain mahogany stands. Natural fire starts would be insufficient to reduce the influence of western juniper in these stands. Increases in western juniper also changes the fuel structure of the stand.

4.5.2.6.4 Alternative C

Direct and Indirect Effects

Direct effects of Alternative C would be similar to Alternative A, with the following exceptions. All wildland fires would be evaluated for resource benefits. Wildfires that do not threaten firefighter or public safety and private property would be managed for resource benefits.

Noxious Weeds. Same as Alternative B.

Fish and Wildlife. Same as Alternative B.

Wildland Fire Management. Same as Alternative B.

4.5.2.6.5 Alternative D

Direct Effects

Direct effects of western juniper cutting and prescribed burning would be similar to Alternative A and the effects of utilizing wildfire for resource benefits would be similar to Alternative B.

Utilization of cut western juniper would reduce the fuel loading in quaking aspen and mountain mahogany. Fire intensity and severity would be lower in wildfires than if slash was left on site.

The most number of acres of quaking aspen and mountain mahogany would be restored in this alternative.

Indirect Effects

Noxious Weeds. Integrated management for control of noxious weeds would continue with emphasis on disturbed areas such as road right of ways, and recreational sites. Priority would be given to high quality natural resource areas. Noxious weed populations would be identified prior to, and after, woodland treatments. Treatments would not occur in areas where noxious weeds would dominate the plant community following treatment

Social and Economic Values. Make contracts for services and sale of products available to local residents. Cut woody material from quaking aspen and mountain mahogany stands could be made available to local residents or private industry. Removal of cut material would reduce the short-term threat of wildfire between the time of cutting and burning in prescribed fire.

Wildland Fire Management. Wildfires outside of the WUI would be evaluated for resource benefits and appropriate management actions would be taken. Wildland fires that do not threaten human life or private property would be managed for resource benefits. The average size of smaller fires would increase in the quaking aspen and mountain mahogany stands. The number of acres mechanically treated to remove western juniper would decrease because wildfires would be managed for resource benefits, reducing the reliance on mechanical methods.

4.5.2.6.6 Alternative E

Direct Effect

Direct effects of Alternative E would be similar to Alternative A with the following exceptions. Seeding of forage species following burning in quaking aspen stands would slow the recovery of native herbaceous and woody plants. No fencing following burning would also slow recovery. Wild and domestic larger herbivores would have ready access to the sites. Use of desirable forage species could help to defray some grazing on new quaking aspen and mountain mahogany shoots.

Indirect Effects

Noxious Weeds. Same as Alternative D.

Social and Economic Values. Make contacts for services and sale of products available to local residence. Cut woody material from quaking aspen and mountain mahogany stands could be made available to local residents or private industry. Removal of cut material would reduce the short-term threat of wildfire between the time of cutting and burning in prescribed fire. Emphasis on commercial products would increase mechanized travel on cut units. Increases in soil compaction and erosion could occur, further slowing recovery of native vegetation.

Wildland Fire Management. Same as Alternative A, except; rehabilitation of burned areas would utilize forage grasses. Recovery of native grasses, forbs and shrubs would be slowed by the seeded forage species.

4.5.2.7 Goals and Objectives

Goal 3 - Manage woodland habitats so the forage, water, cover, structure, and security necessary to meet life history requirements of wildlife would be available on public lands.

Objective 1. Reduce juniper woodlands to help restore riparian and sagebrush habitats.

4.5.2.8 Assumptions

Ninety percent of present-day western juniper woodlands are less than 120 years old. Most of the plant communities where western juniper currently exists are altered plant communities. Western juniper would be actively encroaching into mountain big sagebrush plant communities in the northern end of the Planning Area. Western juniper would be rare or uncommon in the southern end of the Planning Area. Western juniper establishes and grows at the expense of the associated understory plants. The degree to which western juniper dominates a site would be dependent on soil type and depth. Understory plants would be most dramatically reduced on shallow south slopes. A fully developed western juniper woodland can reduce the understory to the point that herbaceous plants cover less than one percent of the soil surface.

Shrubs would be most dramatically affected on deeper soils. The herbaceous understory would be capable of utilizing resources closer to the upper soil layers.

Establishment and woodland development in riparian areas would be similar to quaking aspen stands. Western juniper woodland established less than 120 years ago have the greatest cover in quaking aspen and riparian areas. Response to juniper removal in these communities would be dramatic because of the inherent site productivity.

The increase of western juniper in the mountain big sagebrush and riparian plant communities can be attributed to past livestock management, fire suppression, subtle climatic shifts since the end of the 19th century, or a combination of all three factors. Fire can be an effective tool for restoring sagebrush and riparian habitats, but must be applied before the shrubs in the understory would be lost from the community. Once that occurs, a pre-treatment must be applied to build ladder fuels in the understory.

4.5.2.9 Analysis of Alternatives

4.5.2.9.1 Effects Common to All Alternatives

Direct Effects

Removal of western juniper would result in an increase of available resources (soil moisture and soil nutrients). Residual understory plants would be capable of responding to removal of the western juniper overstory. The amount of mineral soil exposed would increase following burning. The risk of soil erosion following the fire would be directly tied to soil type and slope position. In general, the amount of soil movement would be greatest immediately following fire. Once plant cover begins to increase, the amount of erosion would decrease. Soil movement from closed woodlands would likely be similar to that encountered following burning. However, plant cover would increase following burning as compared to western juniper woodlands where the understory plant cover would either stay static or decrease.

Soil disturbance from western juniper cutting would be least following cutting with chainsaws and would increase with the size of the machinery used. A large percent of the Andrews RA has western juniper on slopes that exceed the safe operation limits of larger machinery.

Indirect Effects

Air Quality. Manage wildland fires to avoid degradation of the airshed. The BLM would work cooperatively with other federal, state and local governments to manage air quality. Dust and smoke from woodland management and wildland fire activities could have detrimental short-term effects on air quality. However, long-term impacts would be negligible to nonexistent.

Water Quality. Maintain, restore or improve water quality to sustain the designated beneficial uses on public lands. Cutting and prescribed fire within the riparian area would be done to restore the riparian areas and water quality. Short-term increases in sediment flow into streams could occur following cutting and prescribed fire. Method and timing of treatment would be modified to reduce the effects to water quality.

Noxious Weeds. Treat noxious weeds and inventory new introductions using the most effective means available. Prior to mechanical treatment or application of fire to an area, the presence or absence of noxious weeds would be noted and the appropriate weed control treatment applied. Monitoring for the persistence of identified noxious weeds would continue for up to five years following treatment. Areas where there would be a large population of noxious weeds would not be treated until effective weed control can occur or other resources issues would be decided to be more severe (i.e. soil loss).

Special Status Species. Manage special status plant and animal species so management actions do not contribute to their decline or listing as T&E species. Presence or absence of special status species would be noted in proposed project areas. Timing and/or method of management action would be prescribed that does not contribute to decline or listing of identified special status species.

Paleontological Resources. Identify significant localities where paleontological resources may be in conflict with other resource uses. Prior to treatment, the potential for paleontological resources would be evaluated. If paleontological resources were found, treatment actions would be designed to protect these resources from damage.

Cultural Resources. Identify significant localities where cultural resources may be in conflict with other resource uses. Prior to treatment, the potential for cultural resources would be evaluated. If cultural resources were found, treatment actions would be designed to protect these resources from damage.

Native American Traditional Practices. Consult with the Burns Paiute Tribe on all management actions. The Burns Paiute Tribe would be informed of treatment areas. Project objectives would consider tribal and other interests.

Visual Resources. Treatment of western juniper stands that established after 1870 would be limited to techniques and size that would meet the VRM Class I and II objectives in those areas. Western juniper would continue to encroach into mountain big sagebrush plant communities within WSAs. Over the long term the landscape character of these sites would change from shrublands to woodlands.

Social and Economic Values. Work cooperatively with public land users consistent with resource objectives. Cooperative projects would be sought with adjacent private land owners. Management decisions would be based on watershed and subwatershed boundaries and not ownership boundaries. This would help to make management action more economical for public and private land managers.

4.5.2.9.2 Alternative A

Direct Effects

The presence of western juniper trees established prior to 1870 would be decreased in riparian and sagebrush habitats. Removal of western juniper would shift animal populations to some degree. Habitat for animals that prefer trees would be decreased, and increased for animals that prefer more open habitats. Within five to ten years, animal species that utilize sagebrush would begin to move back into the area as sagebrush reestablishes.

Following burning, tree cover would be reduced. This may have short-term effects in riparian areas. However, the inherent site productivity in the riparian areas would lead to a rapid plant response from herbaceous and broad-leaved plants. Herbaceous plant productivity would increase in response to tree removal in the short term, but would decline as shrubs reestablished on site. Large and small herbivores would benefit from the increase in forage.

Overstory removal of western juniper by chainsaws or other mechanical methods would result in the accumulation of slash on the soil surface. The amount of slash would depend on the number of trees cut. Downed trees would provide physical protection to understory plants during recovery. The slash would also provide cover and protection for smaller animals. Western juniper needles would remain on the cut trees for up to five years. Over that time, the needles would gradually fall off. Whole-tree shredding would result in small pieces of needles, branches, bole and bark scattered in the vicinity of the tree. Treatment by this method would provide a more open post-treatment plant community.

Burning in cut stands would result in the greatest amount of bare ground following treatment. A greater amount of heat would be transferred to the soil surface in burned areas where trees have been cut. Heat transfer can be decreased by burning these cut areas when soils were wet or frozen. However, the amount of slash consumed would be reduced because of higher fuel moisture. The post treatment plant community would most resemble a prescribed or wildfire.

Indirect Effects

Soils and Biological Soil Crusts. Manage soils on public lands to maintain, restore, or improve soil erosion class, watershed health and areas of fragile soils. Reduction of western juniper in the uplands and adjacent riparian areas may result in a short-term increase in soil erosion immediately after treatment. However, removal of western juniper would allow suppressed understory herbaceous and woody plants to colonize bare ground areas and reduce bare ground. Treatment methods would be selected consistent with BMPs.

Noxious Weeds. Weed management for control of noxious weeds would concentrate on disturbed areas such as roads, ROWs, and recreation sites. Utilization of mechanized equipment for juniper removal could introduce noxious weeds to treatment areas. Mechanized equipment would be cleaned prior to transport to designated treatment area.

Fish and Wildlife. Maintain, restore or improve wildlife, fish and other aquatic habitat. Reducing the influence of western juniper in the uplands and adjacent riparian areas may increase the amount of water in the adjacent streams by reducing the evaporative in the adjacent plant communities. The additional soil moisture would be utilized by the understory plants

during recovery. Short-term increases in bare ground may occur following treatment, but post-treatment response of understory plants would reduce the amounts of bare ground and the potential for sediment to move into the streams.

Allocate forage for wildlife at current demand and allow wildlife populations to expand naturally or through limited transport. Removal of western juniper from the uplands and riparian area would allow understory plants to increase, concomitantly increasing forage for wildlife. Wildlife populations may not initially increase, but the increase in forage could distribute grazing and browsing over a larger area reducing impacts on more sensitive areas.

Special Status Species. Manage in accordance with the Migratory Bird Executive Order and Sagebrush Steppe Ecosystem Management Guidelines. Western juniper has replaced Wyoming and mountain big sagebrush over much of its current range. Reductions in western juniper would allow big sagebrush to reestablish and once again become the dominated woody plant in these plant communities. Many special status species require the presence of sagebrush for part or all of their life cycle.

Social and Economic Values. Make contracts available for services and sale of products available to local residents as need and conditions permit. Contracts to cut and possibly remove western juniper from upland and riparian plant communities may be made available to local contractors. Cut western juniper would be made available for firewood use in designated areas.

Wildland Fire Management. Use prescribed fire and mechanical treatments to reduce fuel loads in areas where fire regimes have been altered. Reducing the accumulation of fuels would also reduce the influence of western juniper on upland and riparian plant communities. Understory plants would increase following western tree cutting and/or burning.

4.5.2.9.3 Alternative B

Direct Effects

Ongoing increases in the number of post-settlement western juniper in riparian and sagebrush habitats would continue, creating a general homogenization of the landscape. Increases in western juniper would occur at the expense of the understory vegetation and the amount of mineral soil exposed would increase, especially on south slopes.

Wildfires would be evaluated for resource benefits. Those fires that do not pose a threat to firefighter or public safety and also do not threaten to affect private land would be managed for resource benefits. Wildfires would be high intensity, and stand-replacing instead of the mixed intensity fires experienced by sagebrush prior to western juniper encroachment.

Animal species that prefer open grasslands, and eventually shrublands, would begin to utilize the burned areas. However, in the absence of burning, animal species that utilize grassland and shrubland habitats would continue to decline as more and more of the area would be converted to western juniper woodlands. A similar trend would occur in the riparian habitats. As western juniper replaces herbaceous and woody riparian vegetation, animals that prefer that habitat would move to other areas and a relatively more simplistic western juniper woodland animal community would move into the area.

Threats to firefighter and public safety would be greater because of the change in fire behavior, and fire intensity would be greater in the western juniper woodlands. Flame lengths and subsequently the amount of energy released by the fire would be greater under this alternative than in the other alternatives.

Allowing natural processes to determine the structure and composition of riparian, and sagebrush communities can be expected to result in a continued increase in the importance of western juniper established after 1870, in these communities, with gradual diminishing or loss of at least some of the habitat values that would be unique to those communities. Due to the increased fuel, temperatures would probably be higher when fires inevitably occur in these other communities. For this reason, and because the species that would be dependent upon or characteristic of those habitats were not adapted to low-frequency high-intensity fire, the degree to which the existing vegetation and/or soil seed bank would be consumed would probably be greater.

Indirect Effects

Noxious Weeds. Treat only high priority areas of noxious weeds to protect high quality natural resource lands and adjacent private lands. Manual or biological control methods would be preferentially used. Noxious weeds could increase

in low priority areas that have been disturbed by treatment. Areas where noxious weeds were present may not be treated due to expense of manual weed treatment.

Fish and Wildlife. Identify opportunities for improvement/restoration of fish and wildlife habitat through the use of wildland fire, and other passive methods. Western juniper would continue to increase throughout much of the sagebrush plant communities and riparian areas between 4,000 and 7,000 feet elevation. Western juniper stands would be allowed to attain a density where only large scale catastrophic fires would occur.

Special Status Species. Allow natural processes determine the habitat for special status plant and animal species. Western juniper would continue to increase, replacing big sagebrush and riparian woody vegetation. Associated understory plants would also decrease. Special status species depended on big sagebrush or riparian plant communities would decline and be replaced by species that prefer a closed woodland.

Wildland Fire Management. Suppress fires that threaten human life, private property, or areas that possess significant resource value. Other fires would be evaluated and managed for resource benefits. Many small fires would occur in areas dominated by western juniper. Single trees that were previously extinguished would continue to burn and likely form small, isolated patches of dead western juniper. However, the potential for large catastrophic wildfires increases as the density and cover of western juniper increases. These large, intense fires would result in mortality of western juniper and the associated, desirable understory plant species. Natural recover would be limited under these conditions because of the extensive plant mortality and the consumption of seeds stored in the soil.

4.5.2.9.4 Alternative C

Direct Effects

Direct effects of Alternative C would be similar to Alternative A with the following exceptions. Wildland fires would be evaluated for threats to firefighter safety, public safety, and private lands. Fires that do not pose threats to firefighters, public, or private land would be managed for resource benefits. Post-fire plant community would be similar to Alternative A. Post-fire plant communities would be dominated by herbaceous plants for five to fifteen years. Sagebrush and other shrubs would begin to reassert dominance throughout that period of time. As shrubs increase, herbaceous plant cover and density would decrease.

The direct effects of cutting of western juniper would be similar to Alternative A.

Indirect Effects

Soils and Biological Soil Crusts. Same as Alternative A.

Noxious Weeds. Same as Alternative B.

Fish and Wildlife. Same as Alternative B.

Special Status Species. Same as Alternative A.

Social and Economic Values. Same as Alternative B, with the following exceptions: commodity production would be limited as to protect natural values; contracts for western juniper cutting would be limited; and trees would be left on site and not made available for firewood or biofuels.

Wildland Fire Management. Same as Alternative A, with the following exception. Wildfires would be evaluated for resource benefits. Fires that do not threaten human life, private property, or other significant resource values would be managed for resource benefits.

4.5.2.9.5 Alternative D

Direct Effects

Direct effects of Alternative D would be similar to Alternative A and C. Total number of acres treated would be similar to Alternative C. A greater number of acres may be cut in Alternative D than C.

Indirect Effects

Soils and Biological Soil Crusts. Same as Alternative A.

Noxious Weeds. Same as Alternative A, with the following exception: emphasizing high quality natural areas as well as disturbed areas would help to reduce the likelihood of noxious weed establishment in treated areas.

Fish and Wildlife. Same as Alternative A

Special Status Species. Same as Alternative A.

Social and Economic Values. Contracts and cooperative agreements with local persons of groups would be made available when conditions permit. Contract to mechanically cut western juniper, and remove in some places, would be made available to local contractors. Projects would be developed with cooperation of adjacent landowners (public and private) and other interested parties. Development of local markets for byproducts of vegetation treatments would be facilitated by the BLM.

Wildland Fire Management. Same as Alternative A, with the following exception: wildfires would be evaluated for resource benefits; and fires that do not threaten human life, private property, or other significant resource values would be managed for resource benefits.

4.5.2.9.6 Alternative E

Direct Effects

Same as Alternatives A, C, and D. Burned areas would be seeded with desirable forage species to facilitate forage production following burning. Seeding would slow recovery of native species.

Indirect Effects

Soils and Biological Soil Crusts. Same as Alternative A.

Noxious Weeds. Same as Alternative A,

Fish and Wildlife. Same as Alternative A

Special Status Species. Same as Alternative A.

Social and Economic Values. Same as Alternative C.

Wildland Fire Management. Same as Alternative A.

4.5.2.10 Summary of Effects

Direct and indirect effects would be similar across all alternatives, with the exception of Alternative B. In this alternative site specific biologic and physical processes would govern the stand structure. Without mechanical removal of the young (established prior to 1870) trees, the number of trees on the site would increase at the expense of the associated understory plants. Removal of these younger trees would allow understory vegetation to be self sustaining and support a variety of wildlife. Retention of a small percentage of younger trees, as in Alternatives C and D, would allow for replacement of dead and dying western juniper. The mortality of the older trees occurs at a very slow rate, but retention of the younger trees would allow for their replacement.

Fire is a relatively rare event in these old growth stands, but fires do occur at a frequency of once every 100 to 200 years. These fires were limited in size due to the sparse fuel. Often only one tree was involved. Alternative B would retain the younger trees, allowing the stand to become dense and possibly support more continuous fuel layers and larger fires. This would increase the risk of loss of entire old growth stands in wildfires, especially with the emphasis on minimum suppression tactics.

Alternative E would have the greatest number of acres mechanically treated and Alternative B would most likely have the lowest number of acres mechanically treated. Alternative E would have the greatest impacts of mechanized machinery because of the emphasis on commercial products. Harvested western juniper would be mechanically transported off site utilizing mechanized equipment. Soil disturbance would be greatest in this alternative. However, Alternative E would have the greatest short-term economic gain to the local community. Cutting of western juniper could be done by local contractors, and the small diameter material cut could be utilized by a local industry. The small acreage and remote locations of most quaking aspen and mountain mahogany stands reduces the likelihood of this use under current conditions.

Alternatives B, C and D rely heavily on wildland fire to reduce the influence of western juniper in the quaking aspen and mountain mahogany stands. Air quality would be affected most by Alternatives B, C, and D. In these alternatives, wildland fires that do not threaten human life, private property or significant resource values would be managed with minimum suppression tactics. Smoke produced in Alternative D would be concentrated for the most part in the late summer to early fall when areas were burned under management prescription. Total number of acres burned in B, C and D on average may be similar, but Alternative D would have least variation in the number of acres from year to year. Alternatives C and D rely on natural ignitions that would be dependent on local climatic conditions. Smoke would be produced for a longer period than in Alternatives A and E where suppression would extinguish many of the fires in a shorter period of time. Alternatives A and E would require the greatest level of fire suppression action and have the smallest number of acres burned in either wild or prescribed fire. Full suppression could disturb the soil to a greater extent than in Alternatives B, C, and D.

Western juniper would continue to increase at a quicker rate in quaking aspen and mountain mahogany stands in Alternatives B and C than in the other three alternatives. Continued increases in western juniper would reduce the presence of quaking aspen and mountain mahogany. The number of cavities present for cavity nesting birds would be reduced as western juniper replaces quaking aspen. Increases in western juniper would also suppress the establishment and growth of mountain mahogany, especially on the edge of the stands. Younger mountain mahogany provide grazing animals a forage source periodically throughout the year. Trees in the interior of the stand would become decadent and eventually die. A combination of mechanical and wildland fire would be most effective in reducing the influence of western juniper in these stands. Alternative D would treat the greatest number of acres in these plant communities.

Treatment of at least 10,000 acres a year would be sufficient to restore a fire regime that resembles historic and would be appropriated for current desired vegetation conditions over much of the Planning Areas. Treatments over time would result in a mosaic of multiple successional stages across the landscape. As the number of acres and years since initial treatment increase, there should be an increase in the occurrence of wildland fire use in areas where threats to human life and private property were low. This would indicate that the vegetation and subsequently the fire regime would be approaching the appropriated conditions. Post fire stabilization and rehabilitation efforts should decrease as the vegetation approach this condition. However, there would still need to be some type of treatments in areas where there continues to be threats to human life and private property where no cooperative agreements are in place.

Reduction of western juniper in woodlands established after 1870 would move toward restoration of big sagebrush plant communities in between 4,000 and 7,000 feet across areas of the planning unit. Wildlife and plant species that prefer sagebrush habitats would be benefitted by the reduction in western juniper influence in the communities. Alternative E would convert the largest number of acres from western juniper woodlands to sagebrush plant communities. Alternatives A, C, D and E would utilize a combination of mechanical treatments and prescribed and/or wildfire to reduce the influence of western juniper. Alternative B would rely on naturally ignited wildfires. However, only a small percentage of these fires would be managed for resource benefits because of anticipated threats to human life and private property.

Alternative E would treat the most acres mechanically. Encouraging development of new markets for western juniper would increase the level of mechanical activity due to a greater level of tree removal than the other three alternatives with mechanical treatments.

Alternative D would have the greatest number of acres burned because of the combination of prescribed fire and management of wildfire for resource benefits. Alternative A would not evaluate wildland fires for resource benefits. All fires would be suppressed under that alternative. Alternative C would burn a similar number of acres as alternative D, but without the use of mechanical treatments the total number of acres treated would be lower than alternative D.

Wildlife species that prefer sagebrush habitats would benefit most from alternatives A and D. These alternatives would return a greater area to sagebrush habitats. Alternatives B and C would convert a smaller number of acres to sagebrush

habitats and would overall favor species that prefer dense western juniper woodlands. Alternative E may convert a similar number of acres to sagebrush habitats as Alternatives A and D, but there would be a prolonged grassland stage with the seeding of forage species in treated areas.

Soil erosion would be greatest in the short term in Alternative E because of the reliance on mechanical equipment and harvest of western juniper. As herbaceous species increase following treatment that effect would be reduced. Soil erosion following treatment immediately after treatment would be next highest in Alternatives A, D, C, B, respectively. However, Alternative B would have the greatest soil erosion in the long term. The least number of acres would be converted back to sagebrush habitats in Alternative B. Western juniper would continue to increase in density and cover at the expense of understory plants. The amount of exposed bare ground would increase as the understory plants decrease. Soil would continue to be lost beneath these woodlands compared to treated areas where understory plant response has slowed the loss of soil.

4.5.2.11 Cumulative Effects

The relatively small size and position of the old growth stands limits the implication of treatments across a landscape. Old growth western juniper stands are located on rocky ridgetops and shallow soil areas. They often form islands within mountain big and Wyoming big sagebrush plant communities. However, these stands can be extremely important to some wildlife species that utilize older trees for nesting and brood rearing habitat. The presence of these stands helps to increase the diversity of plants and animals across the landscape. Loss of these sites to wildfire or through replacement by younger western juniper would result in a loss of habitat for small mammals and some neotropical migrant birds.

Quaking aspen and mountain mahogany stands comprise less than two percent of the total land area within the Planning Area. Over the past ten years less than one percent of all quaking aspen stands within the Planning Area have been treated by cutting and/or burning (wildfire or prescribed fire). An unknown acreage of quaking aspen and mountain mahogany have been totally converted to western juniper woodlands. These two woodlands occupy a very small percentage of the total Planning Area, but provide important habitat for many wildlife and plant species. Conversion of quaking aspen to western juniper woodlands has the greatest effect on neotropical migrant birds, small mammals and to some extent wild ungulates. Treatment of these areas would often be in conjunction with larger units of mountain big sagebrush and western juniper. This allows for a more efficient management of these areas. Treatment with larger units in the mountain big sagebrush and western juniper woodlands helps to spread grazing pressure. Some treatment units would be fenced to protect new quaking aspen suckers or mountain mahogany seedlings. These fences would be temporary and only limit access until the suckers and seedings grow to a point where browsing by large ungulates would have minimal impacts.

Western juniper has replaced or would be in the processes of replacing big sagebrush across approximately 350,000 acres of the Planning Area. Alteration of the sagebrush plant communities has had an effect on many plant and animal species that were found in these plant communities. Continued expansion of western juniper would cause a further reduction in sagebrush plant communities and loss of habitat. There would also be an overall increase in the amount of bare ground or exposed mineral soil. This would increase the risk of soil movement. Loss of soil would reduce future site productivity and potential for the site to respond to management actions. Increases in erosion may also have impacts on adjacent stream systems and water quality.

Reduction of the western juniper would help to increase watershed integrity by reducing the total amount of soil eroded and transported into streams. Capture and release of precipitation would also be improved with reductions in western juniper. This would help to improve fish habitat down stream from the treatment areas by improving water quality, quantity and seasonal distribution.

Treatment of western juniper woodlands established after 1870 would help to increase the acreage of sagebrush and riparian habitats in the AMU. Reduction in western juniper would also increase the amount of forage available for grazing animals across the planning unit. The increase in western juniper has forced grazing animals, domestic and wild, to utilize a smaller area. Treatment would help to distribute the use across the area more evenly. Animals that rely on big sagebrush for part or all of their life cycle have also been forced to utilize a smaller area. Treatment of western juniper would create a mosaic of shrub and woodland communities across the AMU. Diversity at the species, plant community and landscape level would be highest under these conditions.

4.5.3 Wildland Juniper Management Area

4.5.3.1 Goals and Objectives

Goal - Manage the WJMA for the purposes of experimentation, education, interpretation, and demonstration of active and passive management intended to restore the historic fire regime and native vegetation communities on Steens Mountain.

Objective 1. Establish a series of demonstration areas within the 3,267 acre WJMA for technology transfer and public education.

Objective 2. Evaluate different treatments and management strategies for plant communities dominated by western juniper.

4.5.3.2 Assumptions

All alternatives could result in a temporary reduction in AUMs while some treatments would be evaluated. Every effort would be made to replace the lost forage resource.

4.5.3.3 Analysis of Alternatives

4.5.3.3.1 Effects Common to All Alternatives

Direct Effects

No direct effects common to all alternatives.

Indirect Effects

No indirect effects common to all alternatives.

4.5.3.3.2 Alternative A

Direct Effects

Inventory of biological communities present in the WJMA would help provide information on past, current, and future management actions in the western juniper zone. Data would provide a baseline for future comparison. Signs would be placed adjacent to treatments to help display the type of treatment and the effects. Signs would be an important part of the dissemination of information related to western juniper management.

Indirect Effects

Demonstration areas and signage would be important for disseminating improved scientific understanding of range and juniper management, and would promote improved land management by owners and permittees. Public demonstration of treatment options in a controlled field experiment situation would increase understanding and acceptance of juniper management actions and their effects.

4.5.3.3.3 Alternatives B, C, D, and E

Direct Effects

Effects would be similar to Alternative A.

Indirect Effects

Indirect effects would be similar to Alternative A.

4.5.4 Rangelands

4.5.4.1 Goals and Objectives

Goal 1 - Maintain, restore, or improve the integrity of desirable vegetative communities including perennial, native, and desirable introduced plant species. Provide for their continued existence and normal function in nutrient, water, and energy cycles.

Objective 1. Maintain or restore native vegetation communities through sound landscape management practices.

Objective 2. Manage desirable nonnative seedings to meet resource objectives.

Objective 3. Rehabilitate plant communities that do not have the potential to meet the DRC through management.

Objective 4. Increase species and structural diversity at the plant community and landscape levels in the big sagebrush communities. Provide multiple successional stages within the landscape.

Goal 2 - Manage rangeland habitats so that the forage, water, cover, structure, and security necessary to meet life history requirements of wildlife are available on public lands.

Objective 1. Manage big sagebrush, quaking aspen, and western juniper communities to meet habitat requirements for wildlife.

Objective 2. Manage big sagebrush communities to meet the life history requirements of sagebrush-dependent wildlife.

4.5.4.2 Assumptions

All actions and effects of the different alternatives that are discussed in this section are restricted to areas of public lands other than riparian/wetland, aquatic, woodland, and special-status species habitat areas. Those areas are addressed in other sections.

Changes in vegetation that result either from natural ecological succession or from human-applied treatments include the following:

- increases or decreases in overall or "absolute" cover, namely, the proportion of the ground surface that has live plant material directly above it;
- increases or decreases in the total list of plant species occurring within a discrete area ("species diversity" in this document);
- changes in degree of uniformity or patchiness of occurrence of different species associations or successional stages ("community diversity" in this document; it would be described as being higher when the species compositions of different patches of vegetation are not as similar); and
- changes in "structural diversity," or the degree of patchiness or uniformity of the physical appearance of vegetation.

Generally, vegetation recovers more quickly from disturbances when all aspects of diversity are higher. Also, many environmental parameters that might be included in the general term "habitat values" correlate with the aspects of vegetation described above. For example, increased vegetation cover correlates with increased root density and biomass, which in turn correlates with increased soil stability and reduced erosion. This would be especially true when the vegetation includes a high proportion of herbaceous plants. Increased plant species and community diversity generally correlate with supporting a greater diversity and/or biomass of wildlife species (including nonpest insects, which are an important link in the food chain between plants and vertebrate wildlife). Structural diversity may be advantageous to some wildlife species, but not necessarily to all.

4.5.4.3 Analysis of Alternatives

4.5.4.3.1 Effects Common to All Alternatives

Indirect Effects

Soils and Biological Soil Crusts. The application of BMPs on all surface disturbing activities would help vegetation cover on the limited amount of area involved. The collection of biological soil crust data by means of a standard monitoring method would have minimal effects by itself, but would enable better informed future decisions about management actions and consequences.

4.5.4.3.2 Alternative A

Direct Effects

Nonnative seedings would be managed or manipulated to meet S&Gs. Vegetation characteristics in areas where management or manipulations were applied would probably be altered. Interseeding of only 200 acres would have no appreciable effect on vegetation in the context of the acreage of greater sage-grouse habitat (probably several hundred thousand acres) and deer winter range habitat (537,929 acres) in the Planning Area.

Mechanical methods of decreasing shrub biomass (brush-beating and/or disking) in a mosaic pattern of 50 percent of nonnative seedings where brush cover is high would generally have the effect of increasing the relative cover and biomass of herbaceous species.

Indirect Effects

Woodlands. Active vegetation manipulations and rehabilitation of burned areas would likely result in higher cover and diversity in post-burn early successional communities to a much greater extent than would be likely under AlternativeB.

Similarly, the use of prescribed fire and mechanical treatments to create a mosaic of successional stages and release suppressed desirable plants would create a greater plant community diversity than exists at present, and would facilitate implementation of the S&Gs that pertain to upland habitat areas. These actions would be necessary for enhancing the structural and species diversity of sagebrush, woodland, and other upland habitats.

Noxious Weeds. Under Alternative A, integrated weed management actions would emphasize human-disturbed areas such as roadsides, ROWs, and recreational areas. These actions would result in localized reductions in weed numbers and biomass in such areas. In these areas, weeds can frequently spread and outcompete native species due to their inherent characteristics, the disturbed soil conditions, and increased soil moisture that can result where compacted or impervious surfaces concentrate sheet runoff in the nearby areas. Weed control also tends to protect the integrity and diversity of rangeland vegetation by reducing the spread of weeds into areas further from human influence.

Fish and Wildlife. The seeding of 9,000 acres of deer winter range would result in increased plant numbers and possibly in community diversity in that specific area. Allocation of wildlife forage at current levels would have no effect when compared with the existing condition, but would allow for the persistence of desired wildlife at viable population levels. Monitoring the status of special status species (specifically plants) and allowing for increased populations would not have an effect on rangeland vegetation.

Special Status Species. Limiting the management of big sagebrush habitat for wildlife habitat values to a case-by-case basis would reduce the degree to which these values can be created, enhanced, or restored, due to the staff and calendar time required to review and act on each case. However, any actions taken to implement the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines would probably increase the plant species, community, and structural diversity of rangeland vegetation where those actions occurred.

A determination of existing suitable habitat conditions to support reintroductions of locally extirpated wildlife species and needed improvements could guide habitat enhancement and restoration actions that would be specified under other management actions. These actions would likely increase the structural and/or species diversity of rangeland vegetation. Generally, actions under other issue areas, such as enhancement of quaking aspen and mountain mahogany stands, would

be those that would be important to support reintroductions (e.g., of sharp-tailed grouse and mountain quail, respectively).

Installation of guzzlers in suitable locations would be an important action to enhance the wildlife values of rangelands in the Planning Area. Water would generally be a limiting resource in habitat use by larger mammals and some other species in arid lands such as the Planning Area; if water were not available within relatively short distances, the area would not be suitable for use by larger species of wildlife even where excellent upland habitat conditions exist.
Energy and Minerals. Mineral exploration and development, even if completed with appropriate application of BMPs and site restoration, tends to reduce cover and diversity of rangeland vegetation due to the creation of roads. Even if the roads would be reclaimed and designated as closed, such roads may subsequently be used to access remote areas. Creation and reclamation of roads and exploration sites could encourage the growth of weeds, which in turn reduces native plant species and community diversity both in and adjacent to the road and further away if the weeds spread. These potential effects could be prevented by increased enforcement, which would be required in the approval to operate. Mineral development and production have mixed effects on rangeland vegetation. On one hand, all habitat would be removed from the direct effect areas, which would be a variable percentage of an overall operational area and mineral production operations frequently create migration or movement barriers. On the other, cattle would be routinely excluded from mining operations areas for safety reasons, which can result in increased wildlife use in operations areas other than the direct effect sites.

Wild Horses and Burros. Experience demonstrates that the ongoing management approach to existing wild horse HMAs would be sufficiently compatible with maintenance of the DRC in rangelands that continuation of the current management has little to no effect on rangeland vegetation.

Grazing Management. Livestock grazing provisions under Alternative A, in particular the implementation of the S&Gs, should improve the watershed soil conditions, overall vegetation cover, structural diversity, and species composition of rangelands in the Planning Area.

Off-Highway Vehicles. OHV and mechanized vehicle use can damage vegetation and disrupt the soil surface, leading to the loss of vegetation and biological crusts and thereby to erosion of topsoil. Generally, OHVs used for hunting or sight-seeing cause minimal damage to rangelands because the users tend to remain on or near existing dirt roads, but repeated use of the same routes can result in new two track road.

4.5.4.3.3 Alternative B

Direct Effects

Under Alternative B, native species would colonize rangelands, but weeds or desirable nonnative species could colonize and potentially dominate. Areas burned by natural and human-ignited fires would subsequently support early-successional vegetation communities. Subsequent community development might include or be dominated by native species, desirable nonnative species, and/or weeds. Sagebrush communities could include a greater proportion of late-successional vegetation than exists at present.

Limitations on methods available for management and restoration of rangeland habitat values under Alternative B would limit or preclude the likelihood of achieving Goal 1, Objectives 2 and 3.

Indirect Effects

Woodlands. Under Alternative B, natural processes would be allowed to determine vegetation composition and successional stages; burned areas would be rehabilitated using native species. Burned areas sometimes convert to cheat grass habitat if not rehabilitated. Analogous statements apply to all other similar management actions under Alternative B, which would allow natural processes rather than active management to determine plant community conditions.

Noxious Weeds. Limiting noxious weed treatments to only high priority sites would allow noxious weeds to continue to spread, and to increase the proportion of the current plant community. Preference for manual or biological control methods may result in less effective control than would integrated weed management. The spread and ineffective control of noxious weed species could result in reduction in diversity of rangeland vegetation. Inventories to detect new introductions have no environmental effect without contingent actions to control introductions when found.

Fish and Wildlife. Aerial reseeding of 9,000 acres of deer winter range with sagebrush would have limited effects on rangelands because other species, whether native or desirable nonnative, would not be included in the seed mixture.

Special Status Species. The reintroduction of extirpated animals (e.g., sharp-tailed grouse and mountain quail) would have a negligible effect on rangelands. Allowing bighorn sheep to expand naturally with no control on populations in any given area could eventually deplete forage resources in some areas.

Energy and Minerals. The withdrawal of the entire Planning Area from mineral exploration and development would have the effect of prohibiting development and production. Rangeland vegetation would remain that might otherwise be lost to development activities.

Grazing Management. The grazing provisions of Alternative B would generally result in recovery of natural communities to the DRC, although reliance only on natural processes and not active management could retard this process in degraded areas, particularly those where cheatgrass or other noxious weeds dominate. Such communities do not recover quickly, or at all, in some cases, without active management.

Off-Highway Vehicles. OHV designations use would provide the maximum level of protection and recovery opportunity for rangeland conditions of any of the alternatives.

4.5.4.3.4 Alternative C

Direct Effects

Interseeding of 20,000 acres of nonnative seedings could result in increases of native vegetation diversity and cover. The inclusion of nonnative species could result in competition with native species and thereby may reduce the degree to which an increase in native plant species diversity and cover would be realized.

Generally, the emphasis on use of native species for rehabilitation could result in higher species, community, and structural diversity. Actions to diversify structure and composition of selected nonnative seedings, by interseeding native species on 20,000 acres of nonnative seedings on the north and west side of Steens Mountain, would increase the diversity of rangeland vegetation.

Seeding of native species along with desired nonnative species would increase rangeland vegetation diversity. Provisions for allowing natural processes and naturally ignited wildland fire to create mosaic and release of desired suppressed components of the vegetation would also increase rangeland vegetation community and structural diversity.

Indirect Effects

Interseeding of 20,000 acres of nonnative seedings could result in increases of native vegetation diversity and cover. The inclusion of nonnative species could result in competition with native species and thereby may reduce the degree to which an increase in native plant species diversity and cover would be realized.

Generally, the emphasis on use of native species for rehabilitation could result in higher species, community, and structural diversity. Actions to diversify structure and composition of selected nonnative seedings, by interseeding native species on 20,000 acres of nonnative seedings on the north and west side of Steens Mountain, would increase the diversity of rangeland vegetation.

Seeding of native species along with desired nonnative species would increase rangeland vegetation diversity. Provisions for allowing natural processes and naturally ignited wildland fire to create mosaic and release of desired suppressed components of the vegetation would also increase rangeland vegetation community and structural diversity.

Indirect Effects

Woodlands. By burning and mechanically removing post-settlement western juniper from rangelands, native herbaceous plant species would respond with improved vigor and repopulate the niches formerly occupied by the juniper. Fire tolerant shrub species would also reestablish within the control area. Non-fire tolerant species, such as big sagebrush, would take longer to reestablish unless reseeding would be part of the rehabilitation effort.

Noxious Weeds. Treatment of only high-priority noxious weed infested areas could increase diversity at those sites, but has the potential to allow weed introductions to spread in lower priority areas, with possible loss of community and structural diversity. Inventory to detect new infestations has no environmental effect without contingent actions to control infestations when found.

Fish and Wildlife. Management actions that allow for increasing community and/or structural diversity by prescribed fire, other vegetation manipulations, fence removal, and new water developments would provide for the maximum level of flexibility in increasing existing rangeland diversity.

Allocation of more forage to wildlife would have only limited effects on quantitative aspects of rangeland conditions (e.g., vegetation cover, soil stability, crusts, and erosion) because the same amount of vegetation removal would occur. However, qualitative changes to vegetation structure and composition could occur, resulting from differences in grazing/browsing preferences.

Seeding low vegetative diversity deer winter range with the use of both native and desirable nonnative species would affect rangelands by providing greater diversity and community structure.

Management actions under Alternative C would provide habitat characteristics that would be valuable to game and nongame species in all sagebrush habitats.

Special Status Species. The effects of management actions that improve big sagebrush habitat for the benefit of wildlife, provide for management of bighorn sheep and allow for potential reintroductions of sharp-tail grouse and mountain quail, would be the same as Alternative A.

Installation of up to ten guzzlers under Alternative C would have the same environmental consequences as those discussed under Alternative A.

Energy and Minerals. The withdrawal of a number of special areas from mineral development, as provided under Alternative C, would have environmental consequences similar to those under Alternative B, but to a lesser extent than the withdrawal of the entire Planning Area as provided under Alternative B.

Wild Horses and Burros. The effects of wild horse management on rangelands would be the same as Alternative B.

Grazing Management. The effects of livestock grazing on rangeland vegetation would be reduced from the existing situation, allowing the ecological condition in some areas to improve. A reduction in grazing may also limit the dominance of woody plant species and increase the diversity in most plant communities. Natural functions and watershed stability would also improve with higher ecological condition.

Off-Highway Vehicles. Alternative C OHV designations would protect rangeland vegetation cover nearly to the extent of Alternative B.

4.5.4.3.5 Alternative D

Direct Effects

The effects of management actions under this alternative would be very similar to those under Alternative C

Indirect Effects

Woodlands. The effects of woodlands management on rangelands would be the same as Alternative C.

Noxious Weeds. By applying integrated management, emphasizing prevention of, and increasing inventory in the effort to control noxious weeds, most rangeland sites may stay free from new and existing infestations. By removing all or most of the noxious weed introductions and keeping new introductions from happening, the ecological condition of rangelands would improve or maintain, depending on the site.

Fish and Wildlife. Under Alternative D, management of most big sagebrush habitat for game and nongame species would have the effect of improving the diversity and community structure in degraded deer winter range; however, with the use of nonnative species, native plants may not be as prevalent as if all natives were used.

Special Status Species. The effects of management actions for the benefit of special status species would be the same as Alternative A.

Energy and Minerals. The effects of energy and minerals exploration and development would be the same as Alternative A.

Wild Horses and Burros. The effects of wild horse management on rangelands would be the same as Alternative B.

Grazing Management. Managing for sustainable livestock grazing in both the AMU and the CMPA would not change the present management greatly. New range improvements may change grazing patterns in some areas. By managing to the satisfaction of the S & Gs, rangelands should be protected from impacts caused by grazing.

Off-Highway Vehicles. The Alternative D OHV designations would allow greater OHV and mechanized vehicle use than Alternatives B and C, with potentially greater effects to rangeland vegetation than under Alternatives B and C. However, cooperative management of OHV and mechanized vehicle use under agreements with clubs or groups and other participants could minimize the rangeland effects of OHV and mechanized vehicle use.

4.5.4.3.6 Alternative E

Direct Effects

Vegetation cover would be increased. Compared with the present condition, the emphasis on vegetation biomass and species selection for commodity production would result in lower diversity of native species due to competition with nonnative species, and lower community and structural diversity. Establishment of new nonnative seedings would reduce native species diversity, community diversity, and structural diversity.

Indirect Effects

Woodlands. The effects of management actions under this alternative would be the same as Alternative A except where the development of markets for juniper byproducts may mean removal of more juniper than with fuels reduction treatments alone. The immediate impacts could compact soil and lead to increased erosion, which could affect productivity. In the long term, the removal of juniper would allow for increased herbaceous cover and the reestablishment of sagebrush steppe community.

Noxious Weeds. The effects of noxious weed management in this alternative would be the same as Alternative D except that increasing inventories for detecting new introductions of noxious weeds would allow for increased treatment of existing infestations and reduce the risk of new infestations going undetected.

Fish and Wildlife. The effects of management actions in this alternative would be to provide for some increase in diversity and community structure in nonnative seedings as well as in some deer winter range where vegetative species diversity would be low. In most of the areas with low species diversity remaining and progressing toward restoration of native vegetation, the process would be slow and possibly extend beyond the life of this plan.

Special Status Species. The effects of the management actions in this alternative would be the same as Alternative A.

Energy and Minerals. Areas outside the legislated mineral withdrawal area would be open to leasing and some surface occupancy throughout the entire season, which could affect vegetation in small localized areas. Vegetation could be removed or flattened in those areas to make room for heavy equipment.

Wild Horses and Burros. The effects of the management actions in this alternative would be the same as Alternative A except that wild horses would be reintroduced into part of the South Steens Herd Area along the east side of the Steens from Wild Horse Canyon south to Long Hollow Road. This would affect rangeland vegetation in that area by introducing yearlong use by wild horses on much of the native vegetation, thereby reducing the vegetative cover and productivity of this area.

Grazing Management. Livestock grazing would be maximized, allowing greater forage utilization. This would put more pressure on forage resources in easily accessible areas. Rangeland projects would be constructed for the benefit of the

increased grazing, causing some disturbance to vegetation in small, localized areas from trampling and trails. The overall long-term vigor and health of vegetation communities could be maintained across the landscape.

Off-Highway Vehicles. Alternative E OHV designations would protect rangeland vegetation cover the least when compared to Alternatives B, C, and D. The effects would be comparable to Alternative A.

4.5.4.4 Summary of Effects

In Alternative A, interseeding of only 200 acres would have no effect on vegetation within Greater sage-grouse habitat and deer winter range. Mechanical methods used to decrease shrub biomass, would increase the cover and biomass of herbaceous plant species. The application of prescribed fire in some vegetation communities would create a mosaic of successional stages and release plants that have been suppressed due to lack of fire. Noxious weeds could be successfully managed by using integrated weed management in some of the problem areas such as roadsides, ROWs, and recreational areas. Additional seeding of sagebrush in deer winter ranges could improve habitat and community diversity. Construction of guzzlers in areas where water would not be present could enhance wildlife habitat in those areas. Management of livestock grazing would have a beneficial effect on rangelands by allowing for improved watershed conditions, vegetation cover, structural diversity, and species composition. OHV use can cause minimal damage to rangelands in areas where hunting and sightseeing are popular.

With the reduction of livestock grazing in Alternative B, native rangelands would respond with increases in vigor and plant diversity except in areas where noxious weeds have established. Limited controls on noxious weed spread could allow the weeds to dominate native rangelands and could result in a reduction in plant diversity. Allowing bighorn sheep to expand naturally with no control on populations could eventually result in depleted forage resources in some areas. Wild horses would continue to be managed within the AML to keep the effects on vegetation resources minimal. Designations applied to OHV use would provide the maximum level of protection and recovery opportunities for rangelands.

The interseeding of 20,000 acres within nonnative seedings in Alternative C could result in beneficial increases in diversity and cover for wildlife. Burning and mechanically removing post-settlement western juniper from rangelands would allow herbaceous plant species to respond with improved vigor and repopulate the niches formerly occupied by the juniper. Treating only high priority, noxious weed infested areas could protect some areas while allowing weeds to occupy sites in other areas and spread uncontrolled. Seeding lower seral deer winter range with native and desirable nonnative species would provide greater diversity and community structure. The installation of new improvements for the benefit of extending wildlife habitat would have little or no effect on rangelands and could provide additional wildlife habitat. The effects of wild horse management on rangelands would be the same as Alternative B, but the effects of livestock grazing would be greater. Livestock grazing would still be less than in the existing situation, and ecological condition should improve in most areas.

In Alternative D, a smaller number of acres within nonnative seedings would be seeded with native and desirable nonnative plant species than in Alternative C, reducing the effect on the seeding. The effects of controlling post-settlement juniper would be the same as in Alternative C. The effect of noxious weed control would be greater than any other alternative because the management actions emphasize control on all existing sites and extensive inventory in other areas. The management of most big sagebrush plant communities in degraded deer winter range would also improve the diversity and plant community structure. The effects of management actions for the benefit of special status species would be the same as in Alternative A. The effects of energy and minerals exploration and development would be the same as in Alternative A. The effects of wild horse management on rangelands would be the same as in Alternative B. Management for sustainable livestock grazing in both the AMU and the CMPA would not change the present management greatly.

Vegetation cover would be increased in Alternative E. The establishment of new nonnative seedings could reduce the diversity of rangelands in general. More juniper could be removed in this alternative, which could cause impacts to both soils and plant communities. In the long term, herbaceous vegetation would improve with the removal of the juniper. The effects of noxious weed management on rangelands would be the same as in Alternative D. The areas outside the legislated mineral withdrawal area would be open to leasing and could be occupied, which may affect vegetation on those sites. The effects of wild horse management would be the same as in Alternative D, except that vegetation could be affected if horses would be reintroduced on the east side of the Steens Mountains from Wild Horse Canyon to the Long Hollow Road. Productivity and cover could be reduced from horses grazing yearlong in this area. The maximizing of livestock grazing would allow for greater forage utilization and may affect vegetation in easily accessible areas. New

rangeland improvements would be constructed, possibly causing disturbance to vegetation in small, localized areas. OHV use would be the same as in Alternative A.

4.5.4.5 Cumulative Effects

Many changes have taken place since the introduction 150 years ago of cattle, sheep, and horses. The drastic reduction of wildland fires and the accidental introduction of noxious weeds and other aggressive weed species have also changed the landscape in some areas. The application of grazing management, prescribed burning, and integrated weed management would help to change the direction of conditions on some rangelands. The objective would be to improve the ecological condition in key areas where diversity of vegetation would be lacking and exotic species dominate the community.

4.5.5 Noxious Weeds

4.5.5.1 Goals and Objectives

Goal 1 - Control the introduction and proliferation of noxious weeds and reduce the extent and density of established populations to acceptable levels.

Objective 1. Treat noxious weeds and inventory for new infestations using the most effective means available, as outlined in the Burn's District Integrated Weed management Program EA/Decision Record.

Objective 2. Create public awareness on how to utilize public lands without inadvertently spreading noxious weeds.

Objective 3. Maintain partnerships with local groups and government agencies to combine efforts in the control and prevention of noxious weed infestations.

4.5.5.2 Assumptions

Noxious weeds are currently present throughout the subbasin review area, and have become introduced in the Planning Area primarily where disturbance has occurred. Where early detection and control do not occur, these weeds spread out from the initial introduction site, invading even excellent condition plant communities. An integrated weed management program has been implemented covering approximately 3.7 million acres within three counties, including both the Three Rivers and Andrews RAs.

To date, eighteen different noxious weed species have been discovered in the Planning Area. Noxious weed infestations contribute to the loss of rangeland productivity, increased soil erosion, reduced species and structural diversity, and loss of riparian/wetland and wildlife habitat.

Effective management of noxious weeds includes incorporating prevention measures to avoid weed establishment during the design and implementation of any authorized activities. These include such measures as reducing surface disturbance, cleaning all equipment and vehicles, enhancing public awareness of the noxious weed issue, and monitoring high risk areas (e.g., high recreational use areas, livestock holding, salting and watering areas, heavily traveled roads, materials sites). Early detection would be critical in order to control noxious weeds before they spread from the site of introduction. Inventory and monitoring must occur annually in high risk areas; systematic inventory of all areas should occur as priorities and resources allow.

Since portions of the Planning Area would not be public land, BLM management actions alone may not sufficiently protect resources from noxious weed infestations. In mixed ownership watersheds, the assumption would be that the BLM would continue to work in cooperation with federal, state, county, private interests, and the Harney County Weed Management Partnership to control noxious weeds and other invasive species in order to protect soil and other resource values.

4.5.5.3 Analysis of Alternatives

4.5.5.3.1 Effects Common to All Alternatives

Direct Effects

Any management actions that disturb or compact soils and/or remove vegetation can increase the potential for noxious weed or other invasive species infestations that result in degraded plant community structure, cover, composition, or diversity; low or nonproductive soils; erosion; slow water infiltration; and ultimately, habitat conversion. Once established, noxious weeds could be spread by many vectors including livestock and wild horse grazing; construction of range improvements; building or maintaining roads and trails; energy and mineral development; OHV use; recreation site use and development; rangeland vegetation management; woodland management; fire suppression; and wildland fires. All of these vectors could continue to introduce and spread noxious weeds and other invasive species under all of the alternatives. Risk assessments would be conducted at the project/activity design stage to determine the likelihood of increasing noxious weed opportunities. Based on the assessments, appropriate mitigations would be incorporated into the project/activity. The degree and extent of land use represented under each alternative may determine the potential for noxious weed spread and control.

Under all of the alternatives, noxious weed management would be a priority in order to protect the condition of other resource values. Invasive species would be actively controlled through an integrated weed management program. BMPs would be prescribed and implemented at the activity plan level to prevent weed infestations caused by degradation of soil resources. The application of BMPs would be an effective means of preventing noxious weeds or other invasive plant infestations at the activity plan level, thereby reducing erosion, protecting water quality, and increasing desirable vegetative cover.

Indirect Effects

Wild Horses and Burros. Wild horse grazing in areas infested with noxious weeds could increase the distribution of noxious weeds by directly spreading seed or reproductive parts through hair, hooves, or fecal material. This effect would continue under all of the alternatives. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Increases and decreases in AML and forage allocations would be considered under all the alternatives except Alternative A. Alternative A has the greatest potential for the spread and introduction of noxious weeds and other invasive plant species as other resources become degraded through erosion, compaction, and changes in vegetation communities by wild horse and burro use. Alternative A would therefore require a more intensive noxious weed treatment and monitoring program to maintain the current low level of noxious weeds.

4.5.5.3.2 Alternative A

Direct Effects

The effect of implementing integrated management on noxious weeds should effectively eliminate the smaller, more easily eradicated infestations. Larger infestations would be very difficult to eradicate, but could be contained given enough of the most effective tools.

Existing drought conditions play a prominent role in the distribution and number of new infestations of noxious weeds. Invasive species typically tolerate and proliferate in conditions such as drought, while native plant species often could not compete with invasive plants for the necessary resources. Drought conditions may cause an increase in the number of new infestations and the growth rate of existing infestations.

Woodlands. Juniper management could have long-term effects on the rate and spread of noxious weeds by improving desired ground cover. BMPs should include requiring clean equipment, revegetation of treated sites and weed treatment and monitoring as appropriate for each site.

Rangelands. Rangeland vegetation diversity, plant cover and density would be maintained or increased, reducing the potential for noxious weed infestations and distribution. Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland vegetation. These activities could result in short-term damage to vegetation, soil disturbance, soil compaction, erosion, and increased runoff. The application of BMPs, and restoration or rehabilitation of these areas could reduce these short-term effects, and potentially limit noxious weed establishment.

Energy and Minerals. Energy and mineral development in the Planning Area could continue to disturb soils and increase the potential for noxious weed infestation and spread. Additional mineral and energy development and roads to support such developments could continue to increase noxious weed distribution. BMPs that include annual monitoring and treatment for noxious weeds, as well as consideration of noxious weed issues in overall site management and rehabilitation plans would reduce the likelihood of noxious weed problems.

Grazing Management. Livestock grazing in areas infested with noxious weeds could increase the distribution of noxious weeds by directly spreading seeds or reproductive parts through hair, hooves, or fecal material. Managed livestock grazing can be a useful method to enhance competitive vegetation and reduce noxious weed infestations.

Wildland Fire Management. Suppression of wildland fires could reduce the effects caused by noxious weed infestations by limiting the amount of vegetation and soil disturbance resulting from burns, thereby reducing the amount of area available to noxious weed infestations. Suppression activities could also increase the potential for noxious weed infestations by increasing disturbance when using roads and off-road access to fight fire. Other fire related activities include developing staging areas and fire camps in weed infested areas or by increasing disturbance activities that would disturb soils and remove vegetation, opening up disturbed sites to potential new infestations. Prescribed fire and vegetation manipulation projects could potentially reduce noxious weed infestations by using vegetation management practices and BMPs that reduce bare or disturbed soils. Seeding and rehabilitating areas after wildland and prescribed fire would reduce the chances of new noxious weed infestations by providing vegetation cover.

Transportation and Roads. Existing roads, particularly high use roads, would continue to affect vectors for noxious weed establishment in the Planning Area. Public education efforts could reduce the spread of noxious weeds by informing area users to stay on existing roads and trails and identifying and reporting infestations.

Off-Highway Vehicles. OHV and mechanized vehicle use could continue to contribute to the spread of noxious weeds in the areas designated as open, and along existing and designated routes.

Recreation. Recreation activities in the Planning Area would continue to be a factor in spreading noxious weeds. Vehicle use, horseback riding, pack animals, and hiking could introduce noxious weeds from other areas by carrying and distributing seeds to campsites and along trails and roads. Public education efforts could reduce the frequency of noxious weed infestations by informing recreation users of the need to clean their vehicles and camping gear, to stay on existing roads and trails, and to avoid walking through areas infested with noxious weeds.

4.5.5.3.3 Alternative B

Direct Effects

Public education would be expanded to include the local area and areas outside Harney County, which could reduce the effects caused by noxious weed distribution. The reduction in effects may be realized in the form of observations and mechanical control of small infestations.

Inventories would be increased with emphasis on detecting new infestations, and to determine changes in distribution of known infestations, which could reduce the effects caused by noxious weeds if control efforts also increase. The change of priority to treat high quality resource lands for noxious weeds may allow for the establishment and spread of noxious weeds in other parts of the Planning Area. Limiting treatment of noxious weeds to only biological or mechanical methods means there would be no treatment of weed species or infestation situations that do not respond positively to those particular methods.

Indirect Effects

Woodlands. Juniper management could have long-term effects on establishment and rate of spread of noxious weeds, with the same effects as Alternative A, though lower in magnitude.

Rangelands. Allowing natural processes to determine vegetation species composition, successional stages, and reintroduction rate of native species on rangeland plant communities could allow for increased noxious weed infestations. Minimizing control options to influence desired vegetation trends could increase the distribution and rate of new infestations of noxious weeds. Manual and biological controls would not always be efficient or effective methods for controlling some noxious weed species, and would not effectively reduce the effects from such weed infestations.

Energy and Minerals. The lack of energy and mineral development would reduce opportunities for noxious weed establishment in the Planning Area.

Grazing Management. The elimination of livestock grazing throughout the AMU and in portions of the CMPA would reduce disturbance and thereby reduce opportunities for establishment of new infestations of noxious weeds throughout the Planning Area.

Wildland Fire Management. Fire suppression activities would be minimized, which would reduce the effects of ground disturbances and therefore result in a reduction in the establishment and potential spread of noxious weeds. Minimizing fire suppression activities could increase some noxious weed infestations that already exist in the Planning Area by reducing the opportunity for fire to burn those areas and rejuvenate competitive vegetation, and by reducing the number of acres that could be rehabilitated to prevent noxious weed infestations in the future. Prescribed fire and vegetation manipulation would have the same effects as under Alternative A.

Transportation and Roads. Road closures, both seasonal and permanent, would reduce the establishment and spread of noxious weeds. Limiting travel to designated roads and trails would help reduce the spread of noxious weeds in areas where control would be difficult. Continued motorized vehicle travel on open routes would enable weeds to become established on those sites. Management priorities would shift from control treatments focused on roads and high use recreation areas to areas of high quality resource value, thereby increasing the opportunities for noxious weed introduction and spread along roadsides.

Off-Highway Vehicles. Maximizing the areas designated as closed to OHV and mechanized vehicle use, limiting the number of roads and trails designated for use, and not allowing OHV or mechanized vehicle group events would greatly reduce the possibility for noxious weed establishment in those areas. The rate of noxious weed spread and number of new infestations would be greatly reduced by restricting OHV and mechanized vehicle use.

Recreation. Reduced recreation use associated with area and site closures, lack of new recreational developments, and limits on visitor use and group size would reduce noxious weed spread and establishment. Minimal management of recreation use could increase the distribution of noxious weeds in previously infested areas. Closing and rehabilitating undeveloped sites and other sites where natural processes would be jeopardized would reduce noxious weed distribution and limit new infestations.

4.5.5.3.4 Alternative C

Direct Effects

Treatment and inventory of noxious weeds would be the same as under Alternative B. Education efforts for noxious weeds would be the same as Alternative B. Coordination with local groups, counties, and other agencies would be the same as Alternative B.

Indirect Effects

Woodlands. Juniper removal and prescribed fire would be the same as Alternative A, with the same effects.

Rangelands. Native rangeland plant communities would be maintained or improved, with emphasis toward attaining ecological status. Rangeland community plant cover and density would be maintained or increased, thereby reducing the potential for noxious weed introduction and spread.

Desirable nonnative seeding would be managed to maintain or improve vegetation composition, and opportunities to restore areas with unsuccessful nonnative seedings would be implemented. Many of the seedings of crested wheatgrass that have become infested with cheatgrass or medusahead could be restored to desired vegetation cover, reducing noxious and invasive plant species.

Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland vegetation. This would have the same effects as Alternative A.

Energy and Minerals. Many areas would be withdrawn from mineral entry and closed to leasing in order to protect natural values, thereby reducing the effects caused by ground disturbances and minimizing the spread of noxious weeds in those areas. Areas open to mineral and energy development would continue to disturb soils and increase the potential

for noxious weed establishment. Additional mineral and energy development, and roads to support those developments, would continue to increase opportunities for noxious weed distribution.

Grazing Management. The effects of livestock management on the distribution and new infestations of noxious weeds would be similar to Alternative A, with emphasis on nonconsumptive uses while providing for minimal grazing. The spread and effect of noxious weeds would be reduced where disturbance would be reduced due to a lower level of livestock grazing than under Alternative A.

Wildland Fire Management. Noxious weed management would have the same effects as Alternative B for fire suppression and prescribed fire; however, there would be an increased emphasis on rehabilitation and restoration of burn areas, thereby decreasing the effects of noxious weed infestations in the long term.

Transportation and Roads. The effects of noxious weed infestation from roads on other resources would be similar to Alternative B; however, more emphasis on control and restoration of noxious weed sites would reduce the negative effects.

Off- Highway Vehicle. Minimizing OHV and mechanized vehicle use would reduce the spread of noxious weeds, thereby limiting the effects of weeds in areas designated as limited to roads, ways, and trails.

Recreation. Recreation use in the Planning Area would continue to spread noxious weeds, thereby affecting other resource values. Control of noxious weeds would continue in high recreation use areas and could reduce the effects by controlling the spread to other areas. Although some recreational development would occur under this alternative, creating more potential for noxious weeds to become established, this alternative emphasizes the protection of natural and cultural values. Closure or rehabilitation of dispersed sites would reduce noxious weed spread by actively treating infested areas. Public education efforts could reduce the effects of noxious weeds by informing recreation users to stay on existing roads and trails and to avoid traveling through noxious weeds infestations.

4.5.5.3.5 Alternative D

Direct Effects

Cooperative management with federal, state, county, and private interests would be applied for the management of noxious weeds. The Harney County Weed Management Partnership would continue to be implemented. Public education would be expanded to include areas outside Harney County. Coordination with local, county, state, and federal interests would help to reduce negative effects on resource values from noxious weed infestations through cooperative management and information sharing activities.

Cooperative activities would emphasize prevention, restoration, research, and expanded efforts to inventory and detect new infestations. Control of the introduction and proliferation of noxious weeds would be emphasized on disturbed areas such as roads, ROWs, mineral materials sites, and recreation sites. BMPs would be implemented to emphasize preventative measures to minimize weed spread.

Noxious weed infestation would continue to have an effect on vegetation resources, including riparian, rangeland, and woodlands (e.g., aspen and juniper) plant communities, and control would be emphasized across the entire Planning Area.

Indirect Effects

Woodlands. Juniper removal and prescribed fire would be the same as under Alternative A, with the same effects.

Rangelands. Native rangeland plant communities would be maintained or improved with the same effects as Alternative C.

Desirable nonnative seeding would be managed to maintain or improve vegetation composition. Opportunities to restore areas having unsuccessful nonnative seedings would be the same as under Alternative C, with the same effects.

Prescribed fire and mechanical vegetation removal would be implemented to promote ecologically desirable traits such as a mosaic of successional stages in rangeland vegetation and would have the same effects as Alternative A.

Energy and Minerals. Energy and mineral development would disturb soils and increase the potential for noxious weed introduction and spread on fewer acres of the Planning Area than Alternative A. Additional mineral and energy development, and roads to support those developments, would continue to increase the number of effects from noxious weed distribution.

Grazing Management. Livestock grazing would have the same effects on noxious weed distribution as Alternative A; however, emphasis for management would be for nonconsumptive uses and multiple resource management, which may decrease the magnitude of effects.

Wildland Fire Management. Fire suppression of wildland fires would reduce the effects on other resources caused by noxious weed infestations the same as Alternative A. More emphasis would be implemented to harvesting byproducts from fuel treatments, which could increase the spread of noxious weeds by increased level of ground disturbance.

Transportation and Roads. Existing roads, particularly the high use roads, would continue to be vectors for weed introduction, affecting soil and vegetation resources. Under this alternative, noxious weed inventory and treatment would be a high priority consideration for road maintenance; therefore, road maintenance and noxious weed control treatments could likely reduce the effects caused by the distribution and new infestations of noxious weeds. New road development could increase the effects caused by noxious weeds.

Off-Highway Vehicles. OHV and mechanized vehicle use would continue to contribute to the spread of noxious weeds on 25,286 acres designated as open; 656,590 acres designated as limited to existing roads, ways, and trails; and 794,496 acres designated as limited to designated roads, ways, and trails. More acres of land in the Planning Area would be designated as closed to OHV and mechanized vehicle use, than under Alternative A, and less than Alternative B. Cooperative management with OHV and mechanized vehicle clubs would be sought, and group events would be allowed. Opportunities to reduce noxious weed infestations and the effects to other resources would be sought through educational efforts with cooperators as well as increased inventory, treatment and monitoring.

Recreation. Recreation management in the Planning Area would emphasize maintenance of existing improvements, establishment of new recreation sites to accommodate increased demand, and allowing tourism opportunities, which could potentially increase the spread of noxious weeds to new areas. Control of noxious weeds would continue in high recreation use areas and in newly developed recreational sites. Public education efforts could reduce effects of noxious weeds by informing recreation users to stay on existing roads and trails and to avoid traveling through noxious weeds infestations.

4.5.5.3.6 Alternative E

Direct Effects

Integrated management would be applied for the control of noxious weeds the same as Alternative D. Inventories would be increased to detect new infestations that may have adverse effects on commodity reserves. Control of introduction and proliferation of noxious weeds would be emphasized on disturbed areas such as roads, ROWs, mineral material sites, and recreation sites.

The distribution of noxious weeds and the effects on other resources in the Planning Area, as well as the implementation of BMPs, would be the same as under Alternative A. Noxious weed infestation would continue to affect vegetation resources, including riparian, rangeland, and forest (e.g., aspen and juniper) plant communities; control would be emphasized to protect commodity resources. Management emphasis for the control/treatment of noxious weeds from natural resource areas to commodity protection would potentially have an adverse effect if the high quality natural resource areas become neglected.

Woodlands. Juniper removal and prescribed fire would be the same as under Alternative A, though effects may be greater with an emphasis on commodity production.

Rangelands. Native rangeland plant communities would be maintained or improved, the same as Alternative A, with greater effects due to the emphasis on commodity uses.

Desirable nonnative seeding would be managed to maintain vegetation composition and increase forage. Many of the seedings of crested wheatgrass infested with noxious weeds and other invasive species would be rehabilitated, which would reduce weeds and additional invasive plant infestations.

Prescribed fire and mechanical vegetation removal would be implemented to promote commodity uses in rangeland vegetation. These activities would result in short-term damage to vegetation, soil disturbance, compaction, erosion, and runoff. The application of BMPs and restoration or rehabilitation of these areas could reduce these short-term effects and prevent noxious weed infestations. Long-term effects of these vegetation manipulation practices in vegetation communities would reduce undesirable dominant woody vegetation and release desirable plant species, increasing native plant diversity and community structure and preventing infestations of noxious weeds and other invasive species.

Energy and Minerals. Energy and mineral development would be maximized under this alternative, increasing the acreage of potential soil disturbances and soil crust degradation, thereby creating increased opportunities for noxious weed introduction. The spread of noxious weeds onto more acres with additional mineral and energy development, and roads to support those developments, could increase the effects of noxious weed distribution on other resource values.

Grazing Management. Maximizing livestock grazing could have a greater effect on other resources by potentially creating more livestock related disturbance, providing enhanced opportunities for new introductions of noxious weeds than under the other alternatives. Additional ground disturbances caused by increased rangeland projects and maximizing livestock use in weed infested areas and throughout the Planning Area would increase effects of noxious weeds and other invasive plant infestations on soils, soil crusts, and vegetative diversity. Noxious weed inventory, treatment, and monitoring would be stepped up in areas of heavy livestock use.

Wildland Fire Management. Suppression of wildland fires and prescribed fire would reduce the effects to other resources caused by noxious weed infestations the same as under Alternative A. More emphasis would be placed on harvesting by-products from fuel treatments, which could increase the spread of noxious weeds through an increase in the level of ground disturbance.

Transportation and Roads. Existing roads and newly developed roads to maximize commodity uses would affect soil and vegetation resources, resulting in an increase of noxious weed introductions to the area. Noxious weed control would be a priority under this alternative for management of road maintenance as in Alternative D. New road development would increase the potential adverse effects to other resources resulting from noxious weed infestations.

Off-Highway Vehicles. OHV and mechanized vehicle use would contribute to the spread of noxious weeds because most of the AMU would be open to OHV and mechanized vehicle use. Designating 681,874 acres as open; 510,504 acres as limited to existing roads, ways, and trails; and 283,992 acres as limited to designated roads, ways, and trails would increase the potential spread of noxious weeds and other invasive plant species. Organized OHV and mechanical vehicle events would be encouraged, increasing the potential introduction and spread of noxious weeds. Noxious weed inventory, treatment, and monitoring would be increased in areas of heavy OHV and mechanized vehicle use.

Recreation. Recreation management in the Planning Area would emphasize improvement of existing developed sites, establishment of new recreation sites, and tourism opportunities, which could spread noxious weeds to new areas. The need to control noxious weeds would be important in high use recreation areas and newly developed recreational sites. The potential would be greatest for new noxious weed infestations and expansion of existing infestations throughout the Planning Area. Noxious weed inventory, treatment, and monitoring would be increased in heavy recreation use areas.

4.5.5.4 Summary of Effects

Under all alternatives, the introduction and spread of noxious weeds would continue. Any resource activity or management action resulting in ground disturbances would increase the chances for weed introduction and spread. The different management emphasis under each alternative would determine the degree to which the introduction and spread of weeds would be controlled.

Under Alternative A, weeds would continue to invade from areas outside the Planning Area, although the size and number of existing infestations would decrease with continued treatment.

The effects of noxious weeds on other resources under Alternative B would be mixed. The exclusion of permitted uses and commodity production would decrease weed introductions and establishment. Increased distribution of current weed

infestations could result from the following: lack of emphasis on treating areas that would not be considered high resource value; lack of restoration; prescribed fire; and potential increases in catastrophic wildland fire with less rehabilitation.

Under Alternative C, increased inventory, control, and education efforts could decrease the spread of noxious weeds. The limitations on commodity and recreation uses would decrease new introductions of noxious weeds.

Under Alternative D, the effect of noxious weeds would be mixed. While an increase in commodity and recreation uses would increase new weed introductions and potentially spread those already existing, the emphasis for increases in inventory, control, and education efforts would decrease the spread of noxious weeds overall.

Under Alternative E, weed introduction and establishment could occur due to increased commodity production, recreation uses, and developments that would attract people and equipment to the Planning Area; such activity could introduce weeds to the area and/or spread existing infestations.

4.5.5.5 Cumulative Effects

The introduction of noxious weeds would be likely to continue for the foreseeable future. Cumulative effects of noxious weed infestations have the potential to result in habitat conversion and/or loss of vegetation and wildlife species. Riparian/wetland habitats would also be at risk with noxious weed establishment. Soil crusts and soil productivity could be lost. Cumulative effects could occur on a watershed scale as a result of untended noxious weed introductions and habitat conversion.

An integrated approach to the problem that includes prevention strategies, inventory and early detection, multiple tools for control; research to determine the most effective, efficient strategies, and follow-up monitoring would enable effective noxious weed management throughout the Planning Area, depending on the alternative chosen for program management. Currently, the ongoing weed management program minimizes weed introductions to the Planning Area from outside sources and encourages a coordinated management approach.

4.6 Fish and Wildlife

4.6.1 Fish and Aquatic Habitat

4.6.1.1 Goals and Objectives

Goal 1 - Provide diverse, structured, resilient, and connected habitat on a landscape level to support viable and sustainable populations of wildlife, fish, and other aquatic organisms.

Objective 1. Maintain, restore or improve habitat.

4.6.1.2 Assumptions

The ODFW and/or the USFWS retains jurisdiction over the management of fish and wildlife populations. Maintenance, restoration or improvement of habitat for fish and other aquatic organisms on public lands would be primarily associated with the management of water and riparian vegetation resources. Salmonid and resident fish habitat would be a designated beneficial use in the Planning Area and would be subject to water quality criteria established by the state. Nonpoint source pollution, such as elevated water temperature and sediment input, would be the primary water quality issue regarding public land management.

Most fish species found in the Planning Area require relatively cool, clean water to provide sufficient oxygen and gravel substrates that would be relatively free of fine sediment for spawning. Other aquatic organisms, such as aquatic macroinvertebrates, also require living spaces in gravel and cobble that would be relatively free of fine sediment. Management actions designed to maintain and restore water quality would assist in maintaining and restoring fish and aquatic habitat. Refer to the Water Resources section of this document for analysis of the effects of management actions on water quality, especially sediment and water temperature.

As with water resources, fish and aquatic habitat would be dependent on the condition of resources throughout the watershed, including soils, upland vegetation, and especially riparian vegetation. Maintenance or restoration of both water resources and fish habitat would be primarily attained through maintaining or improving the condition of riparian

and upland vegetation and soils. Management actions to achieve this end would be found in the Water Resources, Soils, and Vegetation sections of this document.

In the Water Resources section, management actions would be reviewed for their effects on water temperature and sediment supplied to water bodies. Temperature and sediment effects occur through changes to riparian and upland vegetation and soils. These changes in vegetation and soils have very similar effects on physical fish habitat as follows:

- Increased riparian vegetation density tends to affect the water resource by reducing erosion, sedimentation, and stream temperature; improving streambank stability; and providing cover for fish in the form of undercut banks and overhanging vegetation.

- Increased riparian vegetation density and structure tends to improve channel function, by stabilizing streambanks, resulting in increased pool density and quality, and increased habitat complexity, all important components of fish and aquatic organism habitat.

- Increased floodplain vegetation density and increased stability of soil on floodplains improve the ability of the floodplain and channel to resist erosion during floods, thereby maintaining physical fish and aquatic organism habitat.

- Increased floodplain vegetation density and increased stability of soil on floodplains increases the ability of the floodplain to store ground water during wet periods. This additional water can be released to the channel during dry periods, resulting in increased flow that benefits fish and other aquatic life during low flow periods.

- Increased riparian and floodplain vegetation density tends to improve the condition of stream gravel and cobble substrate, thereby reducing fine sediment. This allows higher production in aquatic insect and other stream invertebrate communities. Also, reductions in fine sediment in gravel substrate, by reducing erosion and promoting functional channel geomorphic processes, improve fish spawning success.

Due to this strong link between water resources and fish habitat, mediated by the influence of vegetation and soil on both resources, the effects of management actions on water resources would be very similar to effects on fish habitat. Since water quality would be affected by sediment and temperature, these factors would be analyzed in the Water Resources section of this document. This section emphasizes other effects on fish habitat, such as changes in physical habitat structure or direct perturbations of aquatic animals.

Habitat improvement through the implementation of physical structures or channel manipulation would be analyzed at the activity plan level and respective NEPA requirements.

Most of the perennial streams on public lands within the Planning Area and available habitat for fish and other aquatic species would be located within the Steens Mountain Wilderness and designated WSR segments. Management requirements of these areas include "non-degradation" and "protect and enhance ORVs". ORVs include fish habitat and riparian vegetation. These requirements imply managing riparian and stream habitat to maintain or progress toward an advanced ecological status. The interrelated nature of riparian condition to channel stability and complexity, and subsequently aquatic habitat, would facilitate maintaining or restoring fish and aquatic habitat within these areas regardless of resource- specific management actions.

4.6.1.3 Analysis of Alternatives

4.6.1.3.1 Effects Common to All Alternatives

Direct Effects

Aquatic habitat would be formed and maintained by physical processes operating throughout the watershed, especially in riparian vegetation communities. The maintenance, restoration, or improvement of fish and aquatic habitat would, therefore, be primarily accomplished through management actions under Water Resources, Vegetation, and in some cases, the Special Status Species sections.

Indirect Effects

Water Resources. As described in the Water Resources section, BMPs would be prescribed and implemented at the activity plan level to reasonably prevent degradation of water quality. The prevention and reduction of erosion and sediment introduction to water bodies would maintain and restore fish habitat by reducing fine sediment levels in gravel and cobble substrate, thereby increasing invertebrate production and improving spawning success. Increasing riparian vegetation density and structure would increase overhanging cover available to fish, and would also increase the occurrence of undercut banks. Stream channels would be stabilized, increasing habitat complexity and the quality of pools.

BMPs would also be directed toward management practices to facilitate maintenance or improvement of attributes identified through PFC assessment, such as channel geometry or vegetation characteristics. By stabilizing streambanks and increasing vegetation, BMPs designed to reduce channel width-to-depth ratios would tend to increase shade and reduce stream temperature, as well as provide additional overhanging cover. Increases in the density and coverage of riparian vegetation would stabilize streambanks, shorelines and floodplains, resulting in reduced erosion and amount of sediment reaching water bodies. Increased riparian vegetation density would also lead to greater canopy cover, thereby increasing shade and buffering stream temperature.

Waters identified on the 303(d) list would be evaluated to validate impairment or improvement following the listing and where required, WQRPs or other sufficiently stringent measures would be developed to restore water quality. Although the primary objective of WQRPs would be to address the limiting water quality condition such as temperature, this objective would be realized by maintaining or restoring characteristics of riparian and floodplain vegetation communities. These actions would also tend to improve fish habitat characteristics (e.g., increased cover, pool quality, substrate quality, etc.).

Riparian and Wetlands. Prescriptions at the activity plan level would be implemented or continued to manage riparian/wetland vegetation to maintain or progress toward PFC. While vegetation communities in PFC would not be necessarily at site potential or ecological potential, PFC represents a condition where potential erosion, sediment production, and associated effects would be reduced. In streams not currently at PFC, management direction to maintain or progress toward PFC would likely increase the density and coverage of riparian vegetation. This action would stabilize streambanks and floodplains, reducing erosion and sediment delivery to water bodies, thereby reducing fine sediment in gravel and cobble substrates. Increased density of riparian vegetation may also result in greater canopy cover and may narrow stream channels, reducing stream temperature and providing cover. In streams currently at PFC, this management action would promote maintenance of PFC and facilitate managing for site/reach specific values such as fish and aquatic habitat.

Reach/site scale riparian vegetation, hydrology, morphology and soil characteristics (sub-samples) would be assessed to evaluate site potential and capability in the development of activity level plans. Some aspects of fish habitat, such as overhanging cover or pool-riffle complexity, may be improved with riparian communities in or approaching potential ecological condition beyond the base condition level of PFC. This assessment would therefore assist in developing prescriptions for riparian communities to improve fish habitat, such as grazing practices designed to promote stream functional attributes that contribute to habitat complexity.

BMPs would be prescribed and implemented at the activity plan level to maintain, restore, or improve floodplain function and process across all alternatives. These BMPs may include active or passive measures to manage livestock grazing and recreation use in riparian areas. Functioning floodplains store ground water during wet periods and release it slowly to adjacent streams during drier months, providing additional water for fish during low flow periods. Functioning floodplains tend to promote stream channel stability, which increases habitat complexity and the quantity and quality of pools.

Noxious Weeds. Noxious weed prevention and control would continue to be a priority in all alternatives. Noxious weed invasion of native plant communities, including riparian vegetation, results in degraded plant community structure, cover, composition, and diversity. Streambanks may become less stable, or recovery from disturbance may be slower. Fish and aquatic habitat effects include increased sedimentation in gravel and cobble, reduction in cover for fish, and increased temperature. The priority on noxious weed prevention and control would reduce these effects.

Effects to aquatic organisms through the potential introduction of chemicals into water would be assumed to be minimized or avoided through appropriate application techniques according to label restrictions and BLM guidance.

Grazing Management. Whenever existing grazing management practices on public land would be determined to be contributing to nonattainment of resource objectives, appropriate actions would be implemented to meet habitat and other resource objectives (e.g., increases in riparian vegetation density and structure, reduced erosion, increased streambank).

Where grazing occurs along perennial or intermittent streams, physical effects to aquatic habitat may include bank disturbance from hoof action and subsequent reduction of cover and channel complexity. This would be anticipated to be a localized effect, and would be minimized or avoided through grazing management BMPs. Where grazing use occurs during salmonid spawning, livestock could disturb eggs or pre-emergent juveniles through trampling of redds (the spawning area of trout or salmon). However, early season grazing management (spring/early summer) during the salmonid spawning period tends to reduce livestock presence along the stream, thereby reducing the likelihood of effects to salmonid spawning sites. Areas burned by wildland or prescribed fire would be rested for a minimum of two growing seasons, or until monitoring data support resumption of grazing. This would allow increased vegetation density, and would reduce erosion and sediment delivery to water bodies, thereby reducing fine sediment in gravel and cobble substrates.

Special Status Species. Goals and objectives for the management of special status species promote the objectives for fish and aquatic habitat. The management of special status species habitat for conservation and/or recovery, primarily realized through improvements in the riparian vegetation community, would lead to increases in available cover and habitat complexity in water bodies where redband trout and other special status aquatic species were found.

4.6.1.3.2 Alternative A

Indirect Effects

Water Resources. Current management with respect to impaired waters would continue, with management of riparian and adjacent uplands based on site or reach management objectives. Management would be modified where necessary with development and implementation of WQRPs and associated activity plans. The development of WQRPs would be based on the TMDL schedule established by the DEQ, with completion planned for 2007. Fish and aquatic habitat improvements would be expected through the development and implementation of WQRPs as riparian vegetation would be restored and channel and floodplain function improves.

Riparian and Wetlands. Activity plan level management prescriptions and/or WQRP prescriptions would be developed based on reach or site scale assessment, and on site-specific resource management objectives. Management would not be guided by prioritization across the Planning Area, but site-specific management objectives with respect to water quality, and therefore fish habitat, would be developed and implemented through other scheduled assessments or activity planning processes.

Existing grazing and recreation systems and improvements to maintain PFC would continue. Outside of areas affected by WQRPs or other special planning requirements (e.g., WSRs), riparian/wetland areas would not necessarily be managed to attain advanced ecological status; however, management to maintain or promote PFC may also promote advanced ecological status in many areas. In some locations, vegetation communities in PFC may not provide as much shade or resistance to erosion as communities in advanced ecological status. Fish habitat may be less complex, and less cover may be available in areas managed solely for PFC.

Sources of localized tree and shrub source material for restoration would continue to be established and maintained. These sources would assist in restoring riparian vegetation. Restoration of riparian vegetation in disturbed areas may increase streambank stability, the amount of cover available to fish, and aquatic habitat complexity.

Roads within or affecting riparian areas would be maintained and developed in conformance with existing laws and regulations. Although BMPs would be applied to minimize or eliminate the effects of roads, the development and management of roads would be based on all resource management objectives. Where roads disturb riparian vegetation, streambank instability or stream channel changes may cause reductions in aquatic habitat complexity and available cover.

Beaver populations would be allowed to expand naturally under this alternative. Beaver expansion into riparian and wetland areas where riparian vegetation condition could not sustain increased utilization by beaver populations could result in reduced bank stability and shade, and subsequent increases in sediment input and water temperature. Abandoned beaver dams could wash out, resulting in reduced channel stability and increased sediment load, as well as reduced aquatic habitat complexity and quality at the site or stream reach scale. Beaver expansion into riparian communities

where condition allows increased and sustainable vegetation use could result in riparian vegetation expansion and increased in-channel, streambank, and floodplain water storage. Such water storage would moderate summer stream temperatures and trap sediment, thus increasing the complexity of aquatic habitat. Beaver dams could also impede fish migration, particularly during low flow periods.

4.6.1.3.3 Alternative B

Indirect Effects

Water Resources. An assessment component would be added under this alternative to identify and manage stream reaches or sites that provide cold water habitat in streams where temperature seasonally limits the distribution of cold-water fish

species. These cold water areas serve as refuges for fish and other cold water aquatic organisms within streams when temperatures in other areas may be too high. Active identification, assessment, and management of these areas would promote habitat protection, maintenance, or restoration for cold water organisms.

All perennial streams and contributing intermittent streams would be managed for an advanced ecological status. This would emphasize management for riparian resource values such as riparian density, structure, and cover. Improvements in these attributes would provide for maintenance or improvement of cover and complexity in aquatic habitat.

Under this alternative, the development of WQRPs would be generally guided by stream/watershed prioritization (Table 2.1) along with consideration of new circumstances or emerging opportunities. A primary criterion in prioritization would be the presence of special status aquatic organisms, including fish. Prioritization of assessment and activity development would promote maintenance, restoration, or improvement of aquatic habitat for fish and other aquatic organisms.

Riparian and Wetlands. Activity plan management prescriptions or WQRP prescriptions promoting maintenance or restoration of riparian conditions would be developed similar to Alternative A, but would be guided by stream/watershed prioritization. Criteria for prioritization would include the presence of special status aquatic organisms or species of concern, which would promote habitat maintenance or restoration for these organisms.

Similar to Alternative A, this alternative would direct management of existing grazing systems and improvements in the CMPA to maintain PFC. However, an advanced ecological status would be promoted, which could result in increased density and structure in the riparian community. These changes in the riparian community could result in increased aquatic cover and habitat complexity.

Similar to Alternative A, the establishment of sources of localized tree and shrub source material for restoration would assist in restoring riparian vegetation. However, restoration actions would be limited to areas that would not achieve advanced ecological status in the 20 to 50 year timeframe. In other areas where restoration of habitat would be required, restoration would take place more slowly.

Roads within or affecting riparian areas would be inventoried, and alternate routes that affect riparian areas would be eliminated, relocated or reconstructed. Natural recovery of roads would be allowed in areas where erosion potential would be low and recovery potential would be high; active restoration of roads would be pursued in other areas. All of these actions related to roads would decrease disturbances to riparian and wetland vegetation and soils, and maintain or restore aquatic habitat. Road crossings would be evaluated and modified, as necessary, to simulate natural stream function and processes. This action would prevent roads and associated culverts from acting as barriers to migrations of fish or other aquatic organisms.

Beaver populations would be managed as in Alternative A, with the same effects.

4.6.1.3.4 Alternative C

Indirect Effects

Water Resources. As in Alternative B, BMPs would be prescribed and implemented, with an assessment component added to identify and manage stream reaches or sites that provide cold water habitat in streams where temperature seasonally limits the distribution of cold-water fish species, with the same effects.

As in Alternative B, perennial streams and contributing intermittent streams would be managed to progress toward advanced ecological status, with the same effects.

As in Alternative B, WQRPs would be generally guided by stream/watershed prioritization (Table 2.1), with the same effects. However, active restoration may be pursued to initiate or increase the rate of progress toward an advanced ecological status. In disturbed or degraded areas, where natural rates of recovery may be slow, this action would increase vegetative cover and improve riparian community structure, increasing cover and habitat complexity for aquatic organisms.

Riparian and Wetlands. As in Alternative B, activity plan management prescriptions or WQRP prescriptions promoting maintenance or restoration of riparian conditions would be developed; they would be guided by stream/watershed prioritization, with the same effects.

As in Alternative B, this alternative would direct management of existing grazing systems and improvements to maintain PFC, and would promote an advanced ecological status, with the same effects. In addition to Alternative B, both active and passive management and/or restoration of vegetation may be pursued. Some vegetation communities currently in degraded condition would develop coverage and structure more quickly under this alternative than under Alternative A or B, thereby reducing erosion and stream temperature.

The establishment of sources of localized tree and shrub source material for restoration would be the same as for Alternative A, with the same effects.

Management of roads within or affecting riparian areas would be the same as in Alternative B, with the same effects.

Beaver populations would be allowed to expand naturally as in Alternatives A and B, with the same effects. In addition, beaver would be reintroduced into suitable habitat. Since reintroduction areas would have suitable habitat for beaver, increases in vegetative utilization would be sustainable. The effects of reintroduction would therefore tend to include expansion of riparian vegetation, improved streambank stability, and increased cover and habitat complexity.

4.6.1.3.5 Alternative D

Indirect Effects

Water Resources. As in Alternatives B and C, BMPs would be prescribed and implemented. An assessment component would be added to identify and manage stream reaches or sites that provide cold water habitat in streams where temperature seasonally limits the distribution of cold-water fish species, with the same effects.

All perennial waters and contributing intermittent streams identified on the 303(d) list as water quality limited would be managed toward an appropriate ecological status to attain or progress toward attainment of water quality standards or other surrogate measures, with effects to fish and aquatic species similar to Alternatives B and C.

WQRPs would be generally guided by stream/watershed prioritization (Table 2.1) along with consideration of new circumstances or cooperative management opportunities. However, priorities for development of WQRPs would also be based on cooperative management opportunities. Effects would be similar to Alternative C.

As in Alternative C, active restoration may be pursued to initiate or increase the rate of progress toward a desired ecological status, with similar effects.

Riparian and Wetlands. As in Alternatives B and C, activity plan management prescriptions or WQRP prescriptions promoting maintenance or restoration of riparian conditions would be developed and would be guided by stream/watershed prioritization, with the same effects.

This alternative would direct management of existing grazing systems and improvements to maintain PFC and would promote an ecological status dependent on meeting multiple resource objectives. Effects would be similar to Alternative A. Similar to Alternatives B and C, both active and passive management and/or restoration of vegetation may be pursued, with similar effects.

The establishment of sources of localized tree and shrub source material for restoration would be the same as in Alternative C, with the same effects.

Management of roads within or affecting riparian areas would be similar to Alternatives B and C, with the same effects.

Beaver populations would be managed as in Alternative C. However, this alternative would allow for the removal of beaver if suitable habitat would not be available or if economic harm can be demonstrated. In some areas where natural expansion of beaver into unsuitable riparian habitat occurs (i.e., habitat that would be incapable of sustaining increased utilization), removal of beaver could result in increased riparian vegetation density and consequent improvements in aquatic habitat. In some areas where natural expansion of beaver into suitable riparian habitat occurs (i.e., habitat capable of sustaining increased utilization) but beaver would be removed to reduce economic harm, improvements to riparian vegetation and aquatic habitat associated with beaver would not occur.

4.6.1.3.6 Alternative E

Indirect Effects

Water Resources. As in Alternative A, BMPs would be prescribed and implemented to facilitate maintenance or improvement of attributes identified in PFC assessment, and management would consider refuges important to cold water aquatic organisms as delineated by the state. Effects would be the same as Alternative A.

Similar to Alternative A, riparian areas and adjacent uplands of 303(d) listed water bodies would be managed according to site or reach management objectives. However, development and implementation of WQRPs would be guided by stream/watershed prioritization as in Alternatives B, C, and D, with the same effects.

Riparian and Wetlands. As in Alternative B, activity plan management prescriptions or WQRP prescriptions promoting maintenance or restoration of riparian conditions would be developed; they would be guided by stream/watershed prioritization, with the same effects.

Grazing and recreation management would be implemented to provide maximum use while maintaining or progressing toward PFC and/or WQRP objectives. Effects would be similar to Alternative A.

The establishment of sources of localized tree and shrub source material for restoration would be similar to Alternatives C and D, with the same effects.

Management of roads within or affecting riparian areas would be similar to that in Alternative A, with the same effects.

As in Alternative A, beaver populations would be allowed to expand naturally as habitat conditions indicate, unless suitable habitat would not be available or economic harm would be demonstrated, with the same effects. As in Alternative D, the removal of beaver would be allowed if suitable habitat would not be available or if economic harm can be demonstrated, with the same effects.

4.6.1.4 Summary of Effects

Under all alternatives, the management of waters on the 303(d) list would require the eventual development of WQRPs, which would be directed toward maintaining or restoring riparian vegetation density, coverage, and structure, with associated increase in aquatic habitat complexity. Many of the perennial waters in the Planning Area are found within areas with wilderness and/or WSR designation, both of which promote management for maintaining, improving, or restoring aquatic habitat values.

Under all Alternatives except A, the development of WQRPs would be prioritized through watershed assessment. This action would allow for identification of areas that would benefit most from restoration, thus providing the greatest benefit to aquatic species and habitat.

Cold water refuges, an important component of aquatic habitat, would be actively identified and protected by BLM management under Alternatives B, C, and D. Given the greater resources and knowledge of local conditions available to the BLM, identification of these areas would likely be more effective under Alternatives B, C, and D.

Riparian Conservation Areas (RCAs) would be designated under Alternatives B, C, and D for all streams on the 303(d) list. Since WQRPs would be developed for these streams under all alternatives and many of the streams would be in areas with either wilderness or WSR designation, RCA designation may have little effect on specific management actions.

Under Alternatives A and E, riparian and wetland community management would generally be directed toward attaining and maintaining PFC in areas where other management requirements, such as WQRPs or WSR designations, do not apply. Management for PFC would maintain or restore aquatic habitat by reducing or minimizing sediment inputs. However, the lack of emphasis under this alternative on attaining objective-specific ecological status may not provide for increased cover and habitat complexity as under Alternatives B, C, and D.

Active restoration of riparian areas may be pursued to some extent under all Alternatives, although Alternative B has greater limitations. In areas where riparian vegetation is currently degraded, Alternative B may not allow for restoration during the life of this Plan.

Roads in riparian areas would be inventoried under Alternatives B, C, and D, and some roads may be modified or recontoured and revegetated. This action would improve aquatic habitat by removing potential barriers to migration of aquatic animals where roads cross streams. Under Alternatives B and C, road crossings would be modified to simulate natural stream processes and function. This action would improve migration characteristics with respect to Alternative D, where crossings would be modified to reduce erosion.

Under Alternatives A and B, beaver populations would be allowed to expand naturally. In some instances, beaver expansion may conflict with other objectives, such as riparian restoration, or may cause short-term increases in erosion. Under Alternatives C, D, and E, expansion would be limited to areas of suitable habitat, which may restrict beaver expansion into areas where they would conflict with other management objectives or cause short-term increases in erosion. Alternatives C and D allow for active reintroduction into suitable areas. Alternatives D and E allow for beaver to be removed if economic harm or conflicts with other objectives can be demonstrated. Overall, Alternative D limits the potential for beaver populations to conflict with other management objectives (e.g., reduction of erosion or restoration of riparian areas), while providing for increased aquatic habitat complexity that may accrue from expansion of beaver populations. Alternative C maximizes the aquatic habitat benefits of beaver expansion, but may conflict with other resource objectives.

4.6.1.5 Cumulative Effects

Historically, many of the riparian areas throughout the Planning Area may have been heavily utilized for grazing. Decreases in riparian vegetation density and coverage resulted in increased sediment in streams, streambank instability, loss of cover and shade, reduction in instream habitat complexity, and loss of wetland habitat along streams through channel instability or disturbance of wetland vegetation and soils. Recent management to attain and maintain PFC or similar resource objectives through application of grazing management BMPs has resulted in improvement in riparian and wetland vegetation community structure and function, with associated improvements in aquatic habitat.

For many of the streams in the CMPA, management actions would cumulatively promote maintenance of PFC and movement toward an advanced ecological status in riparian and wetland communities. Many of the perennial streams on public land in the CMPA are within the No Livestock Grazing Area, in areas designated as wilderness, or in WSR designation, where protection of ORVs includes protecting aquatic habitat. Also, WQRPs would be developed for many streams in the CMPA, with the objective of improving aquatic habitat values. For most streams in the CMPA, therefore, aquatic habitat conditions would likely improve due to the cumulative effects of management actions under any of the alternatives.

Management actions to promote objective-specific ecological status in riparian and wetland communities apply to most streams outside the CMPA as well, either through WQRPs or because of wilderness or WSR designation. In some locations, however, management may be primarily directed toward maintenance of PFC under Alternatives A and E. In these areas, under Alternatives A and E, aquatic habitat may not reach its structural or functional potential due to the cumulative effects of management for other objectives. Alternatives B and C, and to some extent Alternative D, would reduce cumulative effects on aquatic habitat through emphasis on promoting an advanced ecological status of riparian areas.

4.6.2 Wildlife and Wildlife Habitat

4.6.2.1 Goals and Objectives

Goal – Provide diverse, structured, resilient, and connected habitat on a landscape level to support viable and sustainable populations of wildlife, fish, and other aquatic organisms.

Objective 1. Maintain, restore, or improve habitat.

Objective 2. Manage forage production to support wildlife population levels identified by the ODFW.

4.6.2.2 Assumptions

The ODFW and/or the USFWS retains jurisdiction over the management of wildlife populations. The BLM manages the habitat for wildlife species in cooperation with the ODFW and the USFWS through plans for various species. BLM management emphasis of wildlife species indicated in the alternative themes of this plan would be through recommendations to and in coordination with these agencies.

The management actions found in the Water Resources, Riparian/Wetlands, Rangelands, Woodlands, and Special Status Species sections would directly and indirectly maintain, restore, or improve habitat for general wildlife species. As stated above in the Assumptions section of the Fish and Aquatic Habitat analysis, there would be a strong link between the management actions and the effects of these actions on the quality and quantity of wildlife habitat.

References to either mule deer and/or Greater sage-grouse habitat also include habitat for a myriad of species that would be sagebrush dependent such as sage sparrow, Brewer's sparrow, sage thrasher, pygmy rabbit, sagebrush vole, and others. Some of these would also be special status species such as sage-grouse, pygmy rabbit, sage sparrow, and sage thrasher. Through the use of the DRCs for the management of and restoration of sagebrush steppe habitat, it would be anticipated that the effects of these actions would promote habitat improvements not solely for mule deer and Greater sage-grouse, but for many of these other species.

4.6.2.3 Analysis of Alternatives

4.6.2.3.1 Effects Common to All Alternatives.

Direct Effects

Maintenance, restoration, or improvement of habitat to support these resources would be primarily relative to the alternatives identified under Water Resources, and Vegetation.

Fish and wildlife habitat management and monitoring would be coordinated with the ODFW, DEQ, USFWS, and other cooperators, as appropriate. The BLM would coordinate with the ODFW on the management of wildlife populations through the Planning Area.

Indirect Effects

Riparian and Wetlands Vegetation. Prescriptions at the activity plan level would be implemented or continued to manage riparian/wetland vegetation to maintain or progress toward PFC. While vegetation communities in PFC would not be necessarily at site potential, PFC represents a condition where potential erosion and sediment production would be minimized. In streams not currently in PFC, management direction to maintain or progress toward PFC would increase the density and cover of riparian vegetation. These management actions would have the effect of improving wildlife habitat quality and quantity by providing greater structure, diversity, cover and stability.

Noxious Weeds. Noxious weed prevention and control would continue to be a priority in all alternatives. Noxious weeds invade native plant communities resulting in degraded plant community structure, cover, composition and diversity. The priority on noxious weed prevention and control would reduce these effects on wildlife habitat.

Grazing Management. Whenever it would be determined that existing grazing management practices on public lands would be contributing to nonattainment of resource objectives, appropriate actions would be implemented to meet habitat and other resource objectives. In areas where grazing would be determined to be contributing to nonachievement of

objectives, changes in management would be implemented that would result in increased riparian and upland vegetation density and structure.

Wildland Fire Management. Areas burned by wildland or prescribed fire would be rested for a minimum of two growing seasons; grazing would be resumed only when monitoring data support achievement of objectives. This would allow vegetation to increase in density, and would provide increased habitat for wildlife.

4.6.2.3.2 Alternative A

Direct Effects

Single species oriented management would be emphasized in most habitats.

Opportunities would be identified and undertaken for improvement and/or restoration of other fish and wildlife habitat, such as vegetation manipulation and water development. A variety of methods, including seed drilling and aerial reseeding, could be used to reseed approximately 9,000 acres of deer winter range that were in unsatisfactory condition. The timing and methods used could affect the success rate of vegetative establishment and would be determined on a site-specific basis in coordination with the USFWS, ODFW, and permittees. The composition of the seed mix would include sagebrush and/or a mix of other native and nonnative species. Reseeding activities would be conducted so that minimal disturbance to wildlife would occur. This management action would contribute to increased habitat suitability for wildlife adapted to natural rangeland conditions.

Forage for wildlife would be allocated at management objective levels. Forage allocations currently support wildlife population levels identified by the ODFW. Wildlife populations would be allowed to expand naturally or through limited transplants in coordination with the ODFW. Wildlife could establish populations outside their historic range; no efforts would be made to stop expansion, even if expanding populations caused conflicts with other uses. Transplants would be conducted by the ODFW in accordance with current species-specific management plans.

Indirect Effects

Riparian and Wetlands. Improvements to riparian vegetation, including increased vegetative density, structure, and cover, could occur at specific locations with a proportional increase in wildlife habitat quality. In some locations, vegetation communities in PFC may not provide as much structural diversity and suitable wildlife habitat as would communities in advanced ecological status. A different diversity and abundance of wildlife species may be present at different stages along the ecological status continuum.

Existing grazing systems and improvements to maintain PFC would continue. Outside of areas affected by WQRPs or other special planning requirements (e.g., WSRs), riparian/wetland areas may not be managed to attain advanced ecological status, even though management to maintain or promote PFC may also promote advanced ecological status in many areas.

Sources of localized tree and shrub restoration material would continue to be established and maintained. These sources would assist in restoring riparian vegetation and preserving the genetic integrity of riparian plants. This process would contribute to the viability of riparian vegetation, thereby providing essential habitat components for wildlife.

Roads within or affecting riparian areas would be maintained and developed in conformance with existing laws and regulations. The current effects of roads on wildlife would continue, including displacement due to vehicle noise and human disturbance as well as some reduction in forage, cover, and breeding habitat due to the reduction of riparian vegetation density and coverage

Beaver populations would be allowed to expand naturally under this alternative. Beavers would not be actively introduced or transported into other areas. Beaver activities that expand riparian vegetation and result in construction of ponds increase habitat for insectivorous and piscivorous (fish-eating) birds, amphibians, and other types of wildlife.

Woodlands. Late-seral stage ecological characteristics of old-growth western juniper woodlands would be maintained by mechanical removal of younger trees. Old growth junipers provide cavity nesting habitat for a variety of bird species. Removal of younger trees could reduce the risk of catastrophic fire, thereby helping to retain old-growth juniper habitat. Mechanical removal of younger trees may cause temporary displacement to wildlife, with wildlife returning after activity

ceased. To the degree that management actions would be in accordance with the Migratory Bird Executive Order, some disturbance to nesting birds would occur. All lightning- and human-caused fires would continue to be suppressed. This would eliminate short-term potential effects of fire, such as loss of habitat; however, the long-term effects could include more catastrophic fires and increased habitat loss.

Western juniper would be mechanically removed from quaking aspen and mountain mahogany stands. In quaking aspen stands where juniper has the potential to dominate, the stands would be rehabilitated by prescribed burning. Both quaking aspen and mountain mahogany provide important habitat for wildlife. Since juniper invasion could eventually cause decreased effectiveness of these habitat types, management actions that restore these communities would maintain habitat viability for wildlife.

In sagebrush habitats, increasing juniper density causes a decline in herbaceous and shrub plant diversity and cover, and consequently a decline in wildlife species diversity. Mechanical removal and use of prescribed fires would reduce the presence of younger western juniper trees in sagebrush habitats. These management actions would restore and improve habitat for a diversity of wildlife species. Compliance with the Migratory Bird Executive Order would help to minimize disturbances to reproductive wildlife species (e.g., young birds would have fledged and young mammals would be mobile).

Fencing of treated quaking aspen and mountain mahogany stands where recovery could be suppressed by browsing might temporarily affect forage availability for big game species such as elk and mule deer. When plants would be vigorous enough to tolerate browsing, fences would be removed and big game could return to forage in the treated areas. The fencing could allow increases in vegetation structure that would increase habitat quality for wildlife.

Rangelands. The ecological status of native plant communities would be maintained or improved. Plant density and coverage in these communities would be maintained or increased. Desirable nonnative seedings would be managed to maintain vegetation composition and to meet S&Gs. Maintaining nonnative seedings reduces habitat viability for a diversity of wildlife species, but would provide suitable habitat for species dependent on grasslands. In sage-grouse habitat and/or deer winter range, native vegetative species diversity would be maintained or restored through inter-seeding of native species on 200 acres, which would result in a slight increase in winter habitat for deer and habitat connectivity for sage-grouse. On 50 percent of nonnative seedings where brush cover is high, brushbeating and/or disking in a mosaic pattern would be allowed. This activity could reduce habitat for sagebrush-dependent wildlife, but removal of sagebrush canopy could also allow growth of more forbs and grass, thereby providing important habitat components for wildlife.

Both prescribed fire and mechanical removal would be used to create a mosaic of multiple successional stages; reduced dominance of woody vegetation and release of desirable plants would occur, which could result in increased habitat quality for wildlife. Areas burned by wildland fire would be rehabilitated where needed, reducing future effect such as conversion of the burned landscape into one dominated by undesirable nonnative species such as noxious weeds or cheatgrass.

Wildlife would be temporarily displaced during management actions, but could return after activities ceased. Compliance with the Migratory Bird Executive Order would reduce potential effects to reproducing wildlife. Impacts would be further considered on a case-by-case basis, specific to each activity.

Noxious Weeds. The current integrated management of weeds would continue. Control on disturbed areas would be emphasized, as would inventories of new infestations. Noxious weeds displace high-value native vegetation needed by wildlife and consequently decrease habitat value. Management actions to control and eradicate noxious weeds would restore habitat for wildlife and slow the expansion of weeds into currently uninfested areas. Short-term limited disturbance could occur to wildlife during weed control activities. In the long term, improvements in habitat quality and quantity would result from weed control. The habitat improvements from noxious weed control would correspond to the decrease in noxious weeds and the degree of restoration that would occur after weed control actions.

Energy and Minerals. Current management of locatable mineral entry would continue. Depending on the size, nature, and location of the development, effects on wildlife could include loss of habitat, displacement, ongoing disturbance due to human presence, and loss of reproductive output. The extent of these effects would vary depending on the scale of the operations and their proximity to important habitat (e.g., big game winter range) and habitat that supports a diversity of wildlife, such as riparian/wetland areas. Existing laws, regulations, and policies would minimize the effects from energy and mineral activities on wildlife and their habitat through mitigations.

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Permanent increases or decreases in AMLs and forage allocations would not be considered. Wild horses can reduce forage, cover, and structure in habitats needed by wildlife. Excessive utilization in some areas can remove herbaceous species needed by wildlife and can result in limited plant regrowth. Since forage conditions in each HMA would be monitored annually, wild horse forage use and AMLs could be adjusted through management actions to help maintain a thriving natural ecological balance. New water developments for wild horses could be used by wildlife, and might distribute horses over areas formerly used only lightly or sporadically.

Grazing Management. Existing grazing management would continue within the AMU and the CMPA. Interim adjustments, long-term grazing management, and stocking levels would continue to be adjusted in accordance with the results of monitoring studies, allotment evaluations, and rangeland health assessments. Livestock management practices and administrative solutions would continue to be implemented. These management actions promote livestock use in balance with forage production, thereby assuring that wildlife habitat would not be degraded.

Rangeland improvements such as fences could impede the movement of wildlife and potentially cause mortality due to entanglement. Compliance with BLM fencing requirements would reduce these potential effects. Where livestock would be excluded from streams, springs, riparian habitat, and wetland areas, more forage and cover would be available for wildlife. Detrimental changes in plant communities due to livestock overgrazing would not occur, resulting in improved habitat conditions.

Wildland Fire Management. All wildland fires would be suppressed. Although fire suppression would maintain current wildlife habitat in the short term, larger and hotter fires that would contribute to degradation of wildlife habitat and cause more frequent fire cycles could occur in the long term. Mechanical treatments and/or prescribed fire would be used to reduce fuel loading in areas where the fire regime has been altered. Such actions would help to reduce the potential for increased fire cycles and subsequent conversion of sagebrush habitat into less suitable, weed-infested wildlife habitat. The effects of prescribed and wildland fires depend on the intensity, duration, and timing of the fire activity. Effects from prescribed fire would be analyzed on a case-by-case basis prior to and specific to each project.

Fire rehabilitation would improve habitat value for wildlife in burned areas where vegetation would not be expected to recover naturally. In these areas, a mixture of native and desirable nonnative plant species would be used to restore wildlife habitat and prevent a decline in habitat quality. Disturbances to wildlife from these activities would be unlikely, since suitable habitat would not be present prior to restoration.

Lands and Realty. The management actions associated with authorizations of new ROWs, utilities, and permits for large-scale powerlines, fiberoptic cables, and pipelines would be conducted consistent with existing land use planning, regulations, and laws. ROWs would be located within designated corridors on a case-by-case basis. Siting additional disturbances within previously disturbed sites, such as designated powerline corridors, could reduce effects to wildlife, due to the assumption that this wildlife has already adapted to or been displaced by the developed corridors.
Siting new projects in undisturbed areas could decrease habitat quality for wildlife. Impacts to wildlife from new projects would be analyzed on a case-by-case basis in NEPA documents and would identify any effects that must be minimized through mitigation.

Transportation and Roads. This alternative would maintain the existing transportation and road management, while implementing the provisions of the Steens Act that apply to transportation. Only currently mapped roads would be considered in this section; unmapped roads would be inventoried and managed based on an EA that would include consideration of effects to wildlife. The potential effects of the operation and maintenance of roads on wildlife would vary depending on the road's location and proximity to concentrations of wildlife and their movement corridors.

Off-Highway Vehicles. OHVs would continue to be managed in accordance with the existing open, limited, and closed OHV designations. OHV and mechanized vehicle use can cause short- and long-term disturbances to wildlife. Potential effects due to disturbance include vehicle-caused mortality, poaching, habitat fragmentation, behavior modification, displacement into less suitable habitat, and increased human access into previously undisturbed locations. When OHV or mechanized vehicle use occurs near important breeding habitat, disturbances can lead to a loss or decline in reproduction for wildlife. In certain areas, potential effects due to disturbances would be reduced to the extent that OHV and mechanized vehicle use would be limited to designated roads, ways, and trails, seasonal closures have been implemented, and OHV and mechanized vehicle use would be excluded.

Recreation. Some displacement of wildlife could occur as a result of continuing current recreation management. The numbers of some species that are tolerant of people and recreation activities could increase.

4.6.2.3.3 Alternative B

Direct Effects

The emphasis would be on managing self-sustaining native species.

Aerial reseeding would be used for approximately 9,000 acres of deer winter range. This method would be less invasive and more passive than methods proposed in other alternatives, such as seed drilling. However, limiting reseeding to a single method might not be as successful in restoring sagebrush as having multiple options available, based on site-specific criteria. Only sagebrush would be reseeded. The emphasis on sagebrush could improve winter forage conditions for deer and habitat conditions for other sagebrush dependent species if the locations chosen for reestablishment would otherwise not succeed to sagebrush under natural conditions.

Opportunities would be identified and undertaken for improvement and restoration of fish and wildlife habitat, such as the use of wildland fire, limited fence removal, and other mainly passive methods.

Forage would be allocated for wildlife above management objective levels. Wildlife populations would be allowed to expand naturally. Some wildlife species could establish populations outside their historic range.

Indirect Effects

Riparian and Wetlands. The management goals and objectives for riparian habitat and wetlands would produce effects similar to those described in Alternative A. However, use of passive measures to achieve restoration objectives might result in a longer period of time to improve riparian vegetation communities and consequently, a longer period of time before riparian vegetation improves in condition for wildlife.

Active restoration of upland and riparian communities would be limited to sites that would not attain advanced ecological status in 20 to 50 years. The limited use of active restoration measures and emphasis on passive measures could result in a longer period of time for the development of high quality wildlife habitat. Upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity, with an emphasis on native vegetation. This would help retain and protect edge habitat, which has a high value for wildlife.

The management actions for roads could reduce human-caused disturbances to wildlife due to the elimination of alternative routes in riparian/wetland areas and would result in a slight increase in habitat availability. It would also eventually result in an increase in riparian vegetation, which provides important foraging, cover, and breeding habitat for wildlife. Beaver populations would be managed as in Alternative A and the potential effects would be the same.

Woodland. Fires in western juniper stands would be managed for resource benefits. In the long term, the size and intensity of fires would likely be reduced as the historic fire regime becomes established. Short-term effects, such as temporary displacement, may occur to some species of wildlife, but in the long term, allowing the return of the historic fire regime would most likely result in reduced size and intensity of future fires. Management actions associated with the maintenance, restoration, and improvement of quaking aspen and mountain mahogany stands would rely on natural processes and could take a longer period of time to achieve management goals than alternatives that use both active and passive measures.

Mechanical removal of all younger western juniper trees from riparian and sagebrush habitats would result in an increase in habitat quality for wildlife. Relying on natural and human ignited wildland fires to reduce the influence of western juniper in these same habitats would result in a short-term loss of habitat. In the long term, suitable habitat conditions would develop as long as burned areas were not subsequently invaded by noxious weeds or other undesirable nonnative species. Other effects would be the same as those described for Alternative A.

Rangelands. Rangeland management would emphasize passive methods and natural processes to achieve goals and objectives. Such methods would probably take longer to restore degraded and decadent habitat than a combination of both active and passive methods. In some places, management that emphasizes passive methods and natural processes could result in less suitable habitat for wildlife due to noxious weed or cheatgrass invasion. Management actions would not include the rehabilitation of burned areas, which could result in poorer quality wildlife habitat. However, wildland fire sites

with the potential for weed domination would be rehabilitated. As active management and restoration of these areas occurred, improved habitat would be available for sagebrush dependent wildlife.

Noxious Weeds. The management goals and objectives for noxious weeds would produce effects similar to those described in Alternative A. However, the potential for weed invasion might also be greater than in other alternatives because fewer methods of control would be authorized.

Energy and Minerals. None of the potential effects due to energy and mineral exploration and development described in Alternative A would occur because the entire Planning Area would be recommended for withdrawal from locatable mineral entry.

Wild Horses and Burros. The potential effects of wild horses on wildlife would be the same as those described for Alternative A. Management actions would allow for permanent increases or decreases in AMLs and could allow resource managers to implement adaptive management strategies that would minimize conflicts with wildlife. Permanent increases in AMLs would not reduce habitat suitability for wildlife, since wild horses would be maintained at AMLs that ensure a thriving natural ecological balance between wild horse populations and other resource values. The additional methods of population control could decrease the rate of herd growth, thus minimizing potential conflicts with wildlife for longer periods of time.

Grazing Management. No livestock grazing would be authorized in the AMU. The absence of livestock would lead to increased availability of forage for wildlife, which would be consistent with this alternative's management direction to allocate forage for wildlife above current demand. Populations of some wildlife species in the AMU could be expected to increase. Livestock grazing would occur in the CMPA consistent with the Steens Act, but no rangeland projects would be planned or implemented in support of livestock grazing. Nonconsumptive uses would be emphasized in addition to natural resource objectives, and fewer livestock-mediated changes would occur that result in a decline in wildlife habitat suitability.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. Suppression of other wildland fires would be evaluated and managed with appropriate management actions. In dry years, large wildland fires could change the structure of affected wildlife habitat from sagebrush steppe to annual grassland. If increased fire cycles lead to permanent establishment of grasslands, wildlife species would change to those adapted to grasslands rather than sagebrush. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The lack of flexibility on choice of seed mix might extend the length of time for rehabilitation. An increased period of time to achieve restoration would represent a loss of effective wildlife habitat for that period of time.

Lands and Realty. This alternative would recommend the withdrawal of the entire Planning Area from the public land laws, including the mining laws. All public lands would be retained and public holdings would be increased. Other management actions associated with Alternative B would provide opportunities to maintain, restore, or improve wildlife habitat. The entire Planning Area would be considered a ROW and realty use authorization exclusion area, which would eliminate any of the potential effects to wildlife from lands and realty actions.

Transportation and Roads. Only roads required by law would be constructed and road maintenance would not occur. Road closures would be the most extensive and disturbance to wildlife from transportation and roads would be minimal under this alternative.

Off-Highway Vehicle. Areas designated as closed would be maximized and would include the Alvord Desert playa, Borax Lake, Mickey Hot Springs, Catlow Valley, and all WSAs. All other areas would be designated as limited to designated roads and trails, with a minimum number of roads and trails identified. Organized OHV or mechanized vehicle events would be prohibited. Potential effects from OHVs on wildlife would be limited to those areas along open routes. This would reduce disturbance to wildlife during all seasons of the year.

Recreation. Wildlife would be least disturbed by recreation activities with minimal recreation management and facilities. Some undeveloped recreation sites would be closed or rehabilitated where natural processes would be jeopardized, thus improving wildlife habitat.

4.6.2.3.4 Alternative C

Direct Effects

Throughout the Planning Area, approximately 20,000 acres of nonnative seedings and all native vegetation with low vegetative species diversity in deer winter range would be interseeded to establish native plant species. This action would improve forage productivity and availability for mule deer as well as increase habitat suitability for sage-grouse, migratory birds, and other sagebrush dependent species. A site-by-site analysis would help to determine that plant species would be used in a given location. In areas where sagebrush restoration was a goal, livestock grazing could be used to suppress plant competition and allow establishment of sagebrush. To maximize successful plant establishment and habitat improvement, coordination with the ODFW, USFWS, and permittees would set livestock grazing prescriptions on a site-specific basis in areas to be reseeded. A variety of methods could be used to accomplish the interseeding, allowing the selection of the best method for a given location. Wildlife habitat quality and quantity would be improved across a large expanse of the project area and could contribute to increases in populations of some wildlife species.

Opportunities would be identified to improve and/or restore fish and wildlife habitat through wildland fire, other vegetation manipulations, limited fence removal, water developments, etc. Additional types of projects could include both active and passive methods and would provide more opportunities to improve habitat.

Forage would be allocated for wildlife above management objective levels. In coordination with the ODFW, wildlife populations would be allowed to expand naturally or through limited transplants.

Indirect Effects

Riparian and Wetlands. In this alternative, the rate of progress toward achieving an advanced ecological status for restoration of riparian/wetland areas and upland vegetation would be expected to increase because both active and passive measures would be used. Upland vegetation communities would be manipulated and managed to reduce fire intensity and frequency. Active restoration could include both native and/or desirable nonnative vegetation. Restoration sites would be managed to progress toward native vegetation within the RMP timeframe of 20 to 50 years. Under these management actions, wildlife habitat would be maintained or increased.

Restoration of riparian vegetation would include manipulation of isolated tree and shrub stands to promote regeneration, which could improve cover and forage for wildlife that would be dependent on riparian vegetation.

Roads within or affecting riparian areas would be managed as in Alternative B, and the effects would be similar to those described under Alternative B. In coordination with the ODFW, beaver populations would be managed as in Alternative A. Reintroduction and expansion of beaver into suitable habitat would be allowed, increasing the likelihood of additional wildlife habitat developing as described in Alternatives A and B.

Woodlands. Although the management actions for woodlands would be different under Alternative C than for Alternative A, the potential disturbance effects on wildlife would be the same. The effects on wildlife from mechanical removal of up to 90 percent of the post-settlement western juniper trees in old growth stands would be similar to Alternative A. The effects on wildlife of allowing fires to burn in old growth western juniper stands when no threat to life or significant resource values exists would be similar to the effects described in Alternative B. To the extent that fires might be suppressed, restoration of fire to its historic role in the ecosystem would be delayed.

Using prescribed fire in addition to wildland fire to reduce the influence of western juniper on sagebrush and riparian plant communities would result in short-term habitat loss, but long-term increases in suitable habitat for wildlife. The option of using prescribed fire would allow resource managers an additional method to achieve goals and could result in more rapid development of high-quality wildlife habitat. The effects of the other management actions would be the same as those described for Alternatives A and B.

Rangelands. Emphasis would be on natural values and other resource objectives, such as reestablishment of native species. Actions to diversify the structure and composition of selected nonnative seedings would increase the quality and quantity of habitat available for sagebrush dependent wildlife.

Interseeding would be used on approximately 20,000 acres of nonnative seedings (discussed above) to establish native plants throughout the Planning Area where vegetative diversity would be low. The emphasis would be on reestablishing native species, but other desirable nonnative species could be used in the seeding mix where appropriate. This would increase habitat quality, quantity across a large expanse of the project area and could contribute to increases in sagebrush-dependent wildlife. Livestock grazing could be used to suppress plant competition and allow sagebrush establishment. Seedings on the north and west side of Steens Mountain would be emphasized, improving habitat conditions in these locations for deer and other sagebrush dependent wildlife. Disturbances to wildlife from these activities would be unlikely since suitable habitat would not be present prior to restoration. The pattern of treatment would be mosaic to provide for connectivity between existing sagebrush habitat.

Big sagebrush, quaking aspen, and western juniper communities would be managed for the benefit of all wildlife and to meet the DRC in all habitats. Plant communities that do not meet the DRC due to dominance by annual or invasive species or invasive juniper would be rehabilitated using only native species. The emphasis on native plant species could increase both the quality and quantity of wildlife habitat. Big sagebrush habitat would be managed for the benefit of game and nongame species and would be managed to meet the DRC in all big sagebrush habitats throughout the Planning Area. These management actions would increase the quality and quantity of wildlife habitat.

Noxious Weeds. The effects of management actions for noxious weeds would be similar to those described for Alternative A.

Energy and Minerals. The potential effects of energy and minerals on wildlife as described in Alternative A would be reduced to the extent that big game winter range and areas within 0.6 mile of identified sage grouse leks would be withdrawn from various types of energy and mineral development.

Wild Horses and Burros. The potential effects of management actions associated with wild horses would be the same as those described for Alternative B.

Grazing Management. Protection of natural values would be emphasized in the AMU while providing for minimal sustainable livestock grazing that meets allotment management objectives. Grazing on the CMPA would be allowed consistent with The Steens Act, but natural resource objectives would be emphasized. These management actions would increase the likelihood that wildlife habitat would be maintained or increased. Other management actions to meet natural resource objectives, including discontinued use in vacant allotments that have resource conflicts, could also increase wildlife habitat.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. In the short term, wildlife habitat would be maintained in these areas. However, it would be possible that over the long term, such activities could contribute to the occurrence of larger, hotter fires, with loss of suitable habitat and increased fire cycle and weed invasion, which would decrease habitat value for wildlife. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions if they would be appropriate for resource benefits. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The effects of this management action would be similar to those described under Alternative B. The effects of other management actions would be similar to those described for Alternatives A and B.

Lands and Realty. Special designations, and all lands within 0.6 mile of sage grouse leks, deer and elk winter range, and bighorn sheep habitat, would be designated as ROW and realty use authorization exclusion and avoidance areas. The feasibility of consolidating existing parallel utility ROW facilities through crucial wildlife habitat would be evaluated. Where deemed feasible, consolidation of facilities would be implemented. This would reduce the number of raptor perches spread throughout portions of the Planning Area and would improve habitat conditions for certain wildlife species. Federal agency requests for new withdrawals would be recommended for approval only if they would protect natural values. These management actions, along with others for Alternative C, would minimize disturbance effects to wildlife.

Transportation and Roads. Transportation systems would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. To the extent that this results in road closures, seasonal closures, and

other limitations, disturbance effects to wildlife and their habitat would be minimized and would be similar to those in Alternative B.

Off-Highway Vehicles. Management for minimal OHV and mechanized vehicle use, including limiting OHV and mechanized vehicle use to designated roads, ways, and trails across the Planning Area, would result in reduced disturbance to wildlife. Seasonal area closures and closing unneeded roads would also reduce disturbance to wildlife.

Recreation. Management emphasis for protecting natural values while providing for developed and undeveloped types of recreation could cause less disturbance to wildlife. Some wildlife disturbance and displacement would be expected from existing and proposed recreation projects. The effects of specific projects on wildlife would be analyzed on a case-by-case basis. Concentrated recreation use could result in habitat loss for wildlife sensitive to human disturbances, but species that adapt to humans would be expected to thrive or even concentrate in such areas.

4.6.2.3.5 Alternative D

Direct Effects

Throughout the Planning Area 10,000 acres or more of nonnative seedings and most of the native vegetation with low vegetative species diversity in deer winter range would be interseeded to establish native plant species. This would improve forage productivity and availability because the sites selected for interseeding would have low species diversity. Native species would be used for reseeding, although nonnative species could be used where appropriate. Livestock grazing could be used to suppress competition and allow sagebrush to become established. To the extent that sagebrush were successfully reestablished, suitable habitat for wildlife would improve. As with Alternative C, coordination with the ODFW, USFWS, and permittees would occur to set livestock grazing prescriptions on a site-specific basis in areas to be reseeded.

Opportunities for improvement and restoration of fish and wildlife habitat, such as the use of wildland fire, vegetation manipulation, and water development, would be identified and implemented. However, no fences would be removed due to livestock grazing requirements. Fences could potentially impede the movement of wildlife and cause mortality from entanglement. Continued compliance with BLM fencing requirements would reduce these effects.

As with alternative A, forage for wildlife would be allocated at management objective levels and wildlife populations would be allowed to expand naturally or through limited transplants in coordination with the ODFW.

Indirect Effects

Riparian and Wetlands. The ecological status objectives would be dependent on meeting multiple resource objectives. Similar to Alternative C, management of existing grazing systems and recreation would be directed toward improvements to maintain PFC and promote an advanced ecological status. The rate of progress toward achieving an advanced ecological status through restoration of riparian and upland vegetation would be expected to increase because both active and passive measures would be used.

The effects of the following management actions would be similar to the effects described for Alternatives A and B, respectively: 1) the establishment of sources of localized tree and shrub source material for restoration; and 2) expansion of restoration actions to include isolated stands of riparian vegetation. The effects of roads within or affecting riparian areas would be similar to those described in Alternative B. Beaver populations would be managed as in Alternative C and the effects would be the same as those described in Alternative C.

Woodlands. Although the management actions for woodlands would be different under Alternative D than under Alternatives A, B, and C, the effects on wildlife would be the same as those described under those alternatives. The management action to develop markets for the by-products of juniper removal could result in additional disturbances to wildlife, and would be analyzed on a case-by-case basis.

Rangelands. The ecological status of native plant communities would be maintained or improved. Grazing systems and range improvements designed to improve ecological conditions would have effects similar to those described in Alternative A. Since the emphasis would be on balanced, cooperative management practices, increased forage could be used by wildlife as well as livestock.

Actions would be implemented to diversify the structure and composition of selected nonnative seedings, consistent with resource objectives. These actions would also maintain or improve wildlife habitat. Desirable nonnative seedings would be managed to maintain vegetation composition and meet S&Gs. To the extent that nonnative seedings would be maintained in place of sagebrush habitat, a loss of habitat for sagebrush dependent wildlife would occur.

The following management actions could reduce wildlife habitat in the short term, but in the long term, they would increase the amount and diversity of wildlife habitat: 1) interseeding approximately 10,000 acres or more of nonnative seedings (discussed above) to establish native plants throughout the Planning Area where vegetative diversity would be low. The emphasis would be on reestablishing native species, but other desirable nonnative species could be used in the seeding mix where appropriate; 2) brush beating of sagebrush in a mosaic pattern on 50 percent of seeded areas with high brush cover; 3) plant communities that do not meet the DRC due to dominance by annual or invasive species or invasive juniper would be rehabilitated. Native and nonnative species would be seeded where appropriate; and 4) prescribed fire and wildland fire would be used to create a mosaic of multiple successional stages, reduce the dominance of woody vegetation, and release suppressed desirable plants. The potential effects of these actions would be the same as those previously described for Alternatives A, B, and C.

Noxious Weeds. Treatment for noxious weeds and treatment sites would be similar to Alternative A. Additional actions such as giving priority to high quality areas and emphasis on prevention, restoration, research, and expanded efforts to inventory and detect new infestations would be more likely to maintain or improve wildlife habitat than Alternatives A.

Energy and Minerals. Many areas would be withdrawn from locatable mineral development, including RCAs and ACECs. Seasonal and/or special stipulations would be implemented for big game winter range, certain riparian areas, areas containing federally listed species and their designated critical habitat, and within 0.6 mile of identified sage grouse leks. Effects to wildlife would be reduced with the implementation of the withdrawals or special stipulations. Other wildlife habitat could be reduced in quality due to possibility for energy and mineral exploration and development.

Wild Horses and Burros. The potential effects of management actions associated with wild horses would be the same as those described for Alternative B.

Grazing Management. Grazing management prescriptions in the AMU and on the CMPA would be developed to meet natural resource objectives. The effects of grazing on wildlife and wildlife habitat such as competition for forage, would be similar to Alternative A.

Wildland Fire Management. Management actions and their effects on wildlife would be similar to Alternative C. However, a mixture of native and introduced species would be used to enhance economic and natural resource values for the rehabilitation of burned areas and areas altered by fire suppression. This practice could allow more options for resource managers, the possibility of more rapid rehabilitation of burned sites, and therefore more rapid restoration of wildlife habitat.

Lands and Realty. The acquisition of land with high public resource values would be emphasized, potentially providing increased wildlife habitat. All large scale facilities would be encouraged to locate in the designated corridors. Failure to do so would increase disturbances to wildlife and contribute to habitat loss. WSRs and designated wilderness would be designated as ROW and realty use authorization exclusion areas. New withdrawals and modifications would be considered on a case-by-case basis. Potential disturbance effects to wildlife would be similar to those under Alternative A.

Transportation and Roads. For existing transportation and roads management, this alternative would result in management that meets resource goals and objectives, but strikes a balance between cultural, economic, ecological, and social values. Effects to wildlife would include disturbance from use on existing routes.

Off-Highway Vehicles. OHV and mechanized vehicle use would be managed in accordance with Alternative D OHV designations. The BLM would seek cooperative agreements with OHV and mechanized vehicle clubs and other participants. Potential disturbance effects to wildlife would be analyzed on a case-by-case basis.

Recreation. Tourism opportunities and recreation developments would be allowed if consistent with meeting other resource objectives, thereby minimizing disturbance to wildlife. Development of new recreation sites would be consistent with the protection of natural values, which would also help to minimize disturbances to wildlife.

4.6.2.3.6 Alternative E

Direct Effects

Throughout the Planning Area, 5,000 acres of nonnative seedings and some native vegetation with low species diversity in deer winter range would be interseeded to establish native and other desirable nonnative plant species. This action would improve forage productivity and availability for wildlife because the sites selected for interseeding would have low species diversity. The nonnative species selected would be those that have value for wildlife and livestock, such as high palatability. A site-by-site analysis would help to determine which plant species would be used in a given location. As with Alternatives C and D, coordination with the ODFW, USFWS, and permittees would occur to set livestock grazing prescriptions on a site-specific basis in areas to be reseeded. Minor effects to game species would occur where increased emphasis on desirable vegetation was compatible with forage that game species would use. If desirable vegetation increased nonnative seedings, habitat for grassland species would be maintained or increased, but habitat for sagebrush dependent wildlife would decrease. The potential effects of this management action would be similar to those described for Alternative D.

As with Alternative D, opportunities to improve and restore fish and wildlife habitat through the use of wildland fire, vegetation manipulations, water developments, etc. would be identified and implemented. However, no fences would be removed due to livestock grazing requirements. In addition to fish and wildlife habitat, the improvements would also benefit livestock, and could thereby increase forage competition between wildlife and livestock. Forage for wildlife would be allocated at management objective levels. Wildlife populations would be allowed to expand naturally or through limited transplants in coordination with the ODFW. Forage allocations for wildlife would be increased concurrent with improved range conditions and other improvements.

Indirect Effects

Riparian and Wetlands. Management of existing grazing systems would be directed toward providing maximum use while maintaining or progressing toward PFC. Active restoration of both upland and riparian communities would be pursued to provide sustainable livestock forage recreation uses and would not emphasize ecological status. These management actions could increase competition between wildlife and livestock and reduce suitable wildlife habitat.

Management of roads within or affecting riparian areas would be similar to Alternative A, with additional emphasis on the development of additional roads to promote commodity production and public uses. This action would increase the likelihood of disturbance effects continuing to affect wildlife. New roads would contribute to habitat loss and frequent use of such roads could indirectly reduce habitat suitability for wildlife. The effects of management actions for beavers would be the same as those described under Alternative A.

Woodlands. The effects of management actions would be similar to those described for all other alternatives. The management action to develop markets for the by-products of juniper removal could result in additional disturbances to special status species in certain locations, and would be analyzed on a case-by-case basis.

Rangelands. Production of native, herbaceous, and shrubby vegetation for commodity uses within the constraints of other resource management objectives would be emphasized. Restoration of existing nonnative seedings in poor or fair condition would maintain or improve habitat conditions for wildlife dependent on this habitat type, but would reduce habitat availability for sagebrush dependent species. The use of interseeding to establish native and other desirable nonnative plant species on approximately 5,000 acres (discussed above) of low diversity, nonnative seedings would minimally increase wildlife habitat. The emphasis on commodity production would mean that rangeland treatments would be less likely to develop habitat conditions suitable for wildlife dependent on sagebrush habitat. Areas dominated by cheatgrass, or an overstory of sagebrush with a few herbaceous plants would be rehabilitated with species that would provide optimal forage and vegetative cover. These actions would improve habitat for wildlife.

Plant communities dominated by undesirable invasive species or invasive juniper would be managed for species that would provide optimal forage and vegetative cover for livestock. This could improve wildlife habitat as long as competition with livestock did not reduce forage availability for wildlife. Other management actions, including reduction of woody vegetation and management of big sagebrush habitat, would also increase habitat availability. Reductions in fuel loading (i.e., reduction of woody vegetation) would decrease the likelihood of catastrophic fire, thereby reducing the potential loss of large portions of habitat. Brush beating or disking of a maximum of 75 percent of nonnative seedings

with high shrub cover would be conducted to release grass species and preserve maximum production. This action would reduce habitat for wildlife dependent on sagebrush, but would increase habitat availability for grassland dependent species

Prescribed fire and wildland fire would be used to create a mosaic of multiple successional stages, reduce the dominance of woody vegetation, and release suppressed desirable plants. This action would have the same effects as those described in Alternative B. Similar to Alternative A, mechanical removal of woody vegetation would be used to create structural mosaics, but under this alternative it would be used only on selected sites.

Big sagebrush habitat would be managed for the benefit of game and nongame species and would be managed to meet the DRC in all big sagebrush habitats throughout the Planning Area. Big sagebrush would be reestablished where economically important game species would be present. Big sagebrush, quaking aspen, and western juniper habitat types would be managed where economically important wildlife would be present. This could indirectly provide suitable habitat for wildlife that would not be economically important, but limitations on the extent of this habitat management could reduce suitable wildlife habitat.

Noxious Weeds. Effects of noxious weed treatments would be the same as those described for Alternative D.

Energy and Minerals. Energy and mineral development would be based on the current management framework; only areas closed by Congressional action would be excluded from development. No areas with special emphasis would be excluded from leasing or entry. Certain stipulations could be applied by an ID team prior to leasing. Potential effects of such activities on wildlife would be the same as those described for Alternative A. The likelihood of such effects occurring would be much greater under this alternative than all other alternatives because of the emphasis on commodity production and fewer closed locations.

Wild Horses and Burros. Management actions would be the same as those for Alternative B, except that no legal access to critical private water sources would occur. If Alternative E's emphasis on livestock grazing authorization resulted in increased use in HMAs, then long-term trends toward a decline in rangeland condition could occur if monitoring would not be rigorously pursued and if any needed adjustments in AMLs would not be implemented. This situation could reduce the quality of wildlife habitat.

The management action to expand the South Steens HMA in the Steens Wilderness Area to include the Dry Creek and Big Springs Pastures of the Fish Creek-Big Indian Allotment (#06003), and that part of the South Steens Herd Area that includes Serrano Point Allotment (#6019), Carlson Creek Allotment (#6027), and Bone Creek and Miners Field pastures in the Alvord Peak Allotment (#6038), could affect wildlife habitat through competition for forage and water. Some of this area had horses removed back in the late 1970s and has shown some improvement but not all riparian areas would be in PFC. Wild horse use could degrade wildlife habitat through year long use of riparian areas and reduction of suitable habitat.

Grazing Management. Livestock grazing opportunities would be maximized under this alternative.
Increased emphasis on livestock grazing would be more likely to cause some of the potential effects to wildlife, such as increased competition for forage and changes in vegetation structure described in Alternatives A and B. Although S&Gs would be used to guide management, this alternative does not provide the emphasis on other resource objectives in allotment planning that would be provided in other alternatives. Depending on the location of increased use, some decline in habitat suitability for wildlife could occur if the increased use resulted in a decline in rangeland conditions.

Wildland Fire Management. All wildland fires would be suppressed using appropriate management actions. The effects of this management action would be the same as those described under Alternative A. Rehabilitation of all burned areas with a mixture of native and introduced plant species would be used to provide maximum economic production. Following rehabilitation, an increase in the extent of introduced plants compared to pre-fire conditions could result in a decline in sagebrush habitat for wildlife. If native plants would be prevented from reestablishing within the rehabilitated areas, long-term loss of sagebrush habitat could occur. A plan to manage fires for resource and economic benefit would be developed. Although economic benefits would be prioritized under this alternative, other resources such as big game winter habitat would be likely to receive a similar high priority.

Lands and Realty. Acquisition of land with high commodity values would be emphasized to a greater degree than lands with high natural resource values. In the long term, disturbance effects to wildlife could increase if commodity uses increase. The feasibility of consolidating existing parallel utility ROW facilities through crucial wildlife habitat would be evaluated, but no action would be taken to consolidate the facilities. No new protective withdrawals would be considered. This action, along with other management actions under this alternative, would increase the disturbance effects to wildlife.

Transportation and Roads. Transportation and roads would be managed for the benefit of commodity production. Road closures would be the least extensive under this alternative, and maintenance requirements would be greater. New road development would be encouraged. Under this alternative, the operation and maintenance of roads would be more likely to cause disturbance effects to wildlife than would occur under the other alternatives. The extent of the disturbance would vary depending on the proximity of roads to important wildlife habitat (e.g., deer migration corridors).

Off-Highway Vehicles. Management actions would maximize OHV and mechanized vehicle use. The potential for disturbance to wildlife from OHVs and mechanized vehicles would be highest under this alternative.

Recreation. Increased recreation opportunities and use would result in greater disturbances to wildlife. To the extent that new recreational developments or dispersed recreation occurs in or near areas regularly used by wildlife, they could be permanently displaced from important habitat. The potential for disturbance to wildlife from recreation activities would be greatest under this alternative.

4.6.2.4 Summary of Effects

Under Alternative A, habitats for wildlife would remain relatively static over time. Some habitats, such as Wyoming big sagebrush, would continue to decline, but others such as open grasslands would be created. Restoration and management of wildlife habitats would be considered mainly on a case-by-case basis and not on a landscape level. Continued emphasis on single species management and on game species would promote habitat maintenance for game species. The management goal would be met over the life of the RMP. No major increases or decreases in wildlife resources would be expected.

Under Alternative B, potential effects to wildlife could occur if natural processes result in increased fire cycles that prevent the maintenance of sagebrush communities. Over the long term, minimal fire suppression could possibly contribute to the occurrence of larger, hotter fires, a loss of wildlife habitat, increased fire cycle, and weed invasion.

Under Alternative C, a primary focus would be on habitats that would be important to priority wildlife species. Restoration priorities would be given to those areas with important wildlife habitats. Close monitoring of grazing activities would allow enough residual grasses to remain on site to benefit wildlife habitats. Habitats for game species would be maintained. Restoration priorities would be given to those areas with important wildlife habitats. Increased emphasis on restoration and ecosystem health and less emphasis on commodity production would provide increased forage for game species. Direct competition between game species and livestock for forage would be expected to remain minor due to dietary differences between livestock and most game species. Adjustments in timing, duration, and location of livestock grazing would minimize other effects to game species. Equal emphasis would be placed on habitat requirements for game and non-game wildlife. To the extent possible and practical, wildlife community connectivity and interrelationships would be emphasized in most habitats. This approach would stress landscape or ecosystem management and would be distinctly different from single species management emphasis. Alternative C would meet the management goal faster than all other alternatives.

Under Alternative D, effects to wildlife and their habitats would be similar to Alternative C. Habitats that would be important to important wildlife species would be given priority. Restoration would occur at a slower rate compared to Alternative C, but at a faster rate than under Alternatives A and B. Emphasis would be placed on both game and nongame species. Increased restoration efforts in areas that would be important to wildlife species would be a primary area of focus. Restoration priorities would be given to those areas with important wildlife habitats. The management goal would be met under this alternative.

Under Alternative E, effects would be similar to Alternative A except that increased emphasis would be placed on commodity production. Restoration would also be focused primarily in commodity production areas, which would receive fire suppression priorities over other areas. With increased emphasis on commodity production, some wildlife

habitats would continue to decline. Continued emphasis on single species management and on game species would promote maintenance of habitats for game species. The management goal would be met within the life of the RMP, but at a slower rate than under Alternative A.

4.6.2.5 Cumulative Effects

Activities that allow noxious weeds and invasive exotic plant species such as cheatgrass to increase would continue to cause cumulative effects to wildlife habitats. These effects would not be of concern until disturbances such as wildland fires, excessive grazing, etc. created conditions that allow invasive species to increase. Without active emphasis on restoring these degraded habitats, such cumulative effects would continue. Many sites with low ecological integrity and invasive annual grasses would develop into annual grasslands, decreasing the value of these lands for wildlife.

4.7 Special Status Species

4.7.1 Plants

4.7.1.1 Goals and Objectives

Goal 1 - Maintain, restore, or improve special status plant populations; manage public lands to conserve or contribute to the recovery of threatened or endangered species; and prevent future ESA listings.

Objective 1. Manage special status plant species and their habitats so management actions do not contribute to their decline or listing as T&E.

4.7.1.2 Assumptions

Seventy-three special status plant species occur in the Planning Area in a variety of plant associations and on a variety of physical habitats, many with distinctive soil types. No federal or state listed threatened or endangered plant species would be known within the Planning Area.

Neither species conservation agreements nor management guides for individual species management of special status plant species and their habitats would be developed under any of the alternatives. Inventories for new occurrences of special status plants would be completed in areas of any ground disturbance; areas of noxious weed control activities, where public lands would be targeted for disposal; or for other NEPA actions.

4.7.1.3 Analysis of Alternatives

4.7.1.3.1 Effects Common to All Alternatives

Direct Effects

Known populations of special status plant species would be monitored to provide specific information on the condition of individual populations. Special habitat for special status plants would be managed to allow for increases in populations or maintenance of existing populations. Under each alternative, special status plant species and habitat would be protected in order to prevent listing as threatened or endangered.

Indirect Effects

The AML for the three wild horse HMAs would not change throughout the range of alternatives. Wild horse management would have little or no effect on most known populations of special status plants; however, if new populations would be found near concentration areas such as watering sites, special status plants could be affected by wild horses.

4.7.1.3.2 Alternative A

Direct Effects

There would be no effects associated with Alternative A.

Indirect Effects

Noxious Weeds. Integrated weed management would be applied to most areas within the Planning Area, especially in areas containing special resources, such as special status plant habitat. Special status plants and their habitat would be enhanced with the eradication or management of noxious weeds. Special status plant sites currently free from noxious weeds would benefit from intensive inventory efforts.

Grazing Management. Livestock grazing would continue as authorized by the existing land use plan and would be adjusted if monitoring shows that resources would be affected. Concentrated livestock grazing in areas known to contain special status plants could result in soil disturbance, trampling, and grazing of the plants themselves. Current livestock management would not resulting in effects to known populations of special status plants.

Energy and Minerals. Locatable mining activities, leasable mineral/energy activities, and saleable mineral activities have the potential to adversely affect special status plant species and their habitats. The amount of activity, location, number of new roads, and mining techniques would determine the extent of the effects. These effects would include but would not be limited to lower soil productivity, erosion, compaction, noxious weed and other invasive species infestations and competition, and habitat loss. Gene flow patterns could be disrupted by habitat fragmentation, causing long-term effects where sites become unavailable to occupation/colonization.

Recreation. High recreation use in subalpine areas, along trails, and at overlooks could trample special status plants and introduce noxious weeds.

Transportation and Roads. This alternative would maintain transportation and road management. Road use, maintenance, and new construction could affect special status plant species and plant habitat. Effects from surface disturbances that result in erosion, vegetation removal, and new noxious weed infestations could degrade plant habitat and decrease plant occurrences. Maintenance activities such as blading increase soil erosion, and spread noxious weed infestations, potentially degrading plant habitat and occurrence areas.

Off-Highway Vehicles. OHV and mechanized vehicle use, and increase in use, on approximately 1,479,424 (open, limited to existing and limited to designated) acres in the Planning Area and on designated trails and roads could result in long-term effects to special status plant species occurrence areas and their critical habitats, particularly in areas with fragile soils. Effects to special status plants could include destruction of habitat, destruction of individual plants, and weed introductions, resulting in habitat modifications and increased competition for resources.

Wildland Fire Management. Wildland and prescribed fires could have an effect on some species of special status plants by reducing competition and invasive plant species. Some of the special status plant species grow in areas where there would not be enough fuel to carry a fire in the plant community. Maps would be prepared for resource fire advisors showing special status plant species locations, which could reduce effects from fire suppression activity such as line construction, use of heavy equipment, retardant, staging areas, and fire camps. Management for some special status plant species that would not be fire tolerant could constrain the use of prescribed fire.

Rangelands. Native rangeland plant communities would be maintained or improved with emphasis toward attaining higher ecological status, which would reduce the potential for noxious weed infestations and distribution, and increase habitat values where special status plant species occur.

Prescribed fire and mechanical vegetation removal would generally reduce the woody component and increase the vigor of herbaceous plants. This would benefit the special status herbaceous plants but would not necessarily benefit the special status woody species. Long-term effects of vegetation manipulation practices in vegetation communities would reduce competition for special status plant species.

4.7.1.3.3 Alternative B

Direct Effects

The management of special status plant species concerning monitoring and inventories would be the same as Alternative A. Without new project developments and with the elimination of grazing and mining, management emphasizing natural

processes to determine rangeland conditions could benefit special status plant species in the short term under this alternative.

In the long term, emphasis on minimal management under this alternative could potentially increase effects such as habitat degradation for special interest plant species if management activities fail to meet management objectives for this resource.

Indirect Effects

Lands and Realty. Under lands and realty actions, this alternative would recommend the withdrawal of the entire Planning Area from the public land laws, including the mining laws. All public lands would be retained and public holdings would be increased. These actions could potentially help to meet the management goals and objectives for special status species if they result in the acquisition of land important to all or part of the life history of special status species.

Noxious Weeds. The absence of aggressive weed control would have the potential to result in long-term effects to special status plant species, particularly those growing along or near roads and trails where vehicle use increases introductions of invasive species. Special status plant occurrence areas could be displaced by noxious weeds, and normal reproductive processes and water/nutrient competition would result.

Grazing Management. The absence of livestock grazing throughout the AMU would have a beneficial effect on special status plants that are currently grazed, trampled, or disturbed by livestock. Livestock would no longer distribute noxious weeds into new areas, which would further reduce the effects on special status plant species and their habitat. The management emphasis for nonconsumptive use while providing sustainable livestock use in the CMPA would reduce the effects from noxious weed infestations, trampling, and vegetation removal on special status plant species from the current level. In habitats where plant competition would be increased due to the absence of grazing, some species of special status plants could be adversely affected in the long term.

Energy and Minerals. With entire Planning Areas withdrawn from locatable mineral entry, leasing, and saleable minerals development, mining-related effects to special status plants would be eliminated.

Off-Highway Vehicles. With the elimination of all cross-country OHV and mechanized vehicle use, special status plant occurrence areas would be protected from short-term effects (e.g., trampling, soil disturbance, and vegetation removal), and long-term effects (e.g., erosion and noxious weed infestations) caused by OHV and mechanized vehicle use. The designation of the Alvord Desert and other areas as closed to OHV and mechanized vehicle use would increase the potential for native plant and special status plant species to re-occupy areas previously disturbed by OHV and mechanized vehicle use. This alternative would result in the most beneficial effects to special status plant species and their habitats from closures and the restriction of OHV and mechanized vehicle use to designated roads and trails.

Transportation and Roads. Road closures would reduce soil compaction, erosion, and the potential for noxious weed introductions along roadways where some special status plant species exist No new roads would be developed, thereby eliminating additional sources of soil erosion and noxious weed infestations that could compete with special status plant species and degrade critical habitat.

Recreation. Restrictions on the types and amounts of recreation use would reduce any effects to special status plant species. However, in areas where high recreation use continues and management would be minimal, trampling and noxious weed introductions could affect special status plant species and their habitat.

Wildland Fire Management. Fire suppression activities that would be limited to the protection of life and property may result in certain areas burning repeatedly within a short time, which could adversely affect special status plants and other plant communities in early-seral stages.

Rangelands. Under this alternative, native rangeland plant communities would be maintained or improved with emphasis toward attaining ecological status and minimizing commodity production. Rangeland plant communities would be more widespread and variable, with effects on special status plant species from decreased compaction, erosion, and reduced competition with invasive or undesirable vegetation. Reestablishment of native plants in areas currently in poor condition from nonnative plantings would reduce competition with undesirable species, improve plant cover, reduce erosion, and provide healthy habitat conditions for special status plant species.

Only wildland fire would be used to promote the DRC in the range plant communities. Short- and long-term effects would be similar to Alternative A, though lesser in magnitude without prescribed fires.

4.7.1.3.4 Alternative C

Direct Effects

Management would be directed by individual plant species requirements and emphasizes maintenance and enhancement, the same as under Alternative A.

Noxious Weeds. Noxious weed control would have the same potential to result in effects to special status plant species as Alternative A. The emphasis on management for increased rehabilitation/restoration would have positive long-term effects on special status plants and their habitats, reducing erosion and competition from noxious and invasive plant species.

Grazing Management. The management emphasis for nonconsumptive uses while providing sustainable livestock grazing in the AMU and the CMPA would reduce the effects on special status plants from noxious weed infestations, trampling, and vegetation removal. The effects on special status plant species and their habitats from livestock grazing would be reduced with the elimination of relinquished permits that would be held vacant for two years.

Energy and Minerals. Locatable mining activities, leasable mineral activities, and saleable minerals would be the same as Alternative A with the following exception: This alternative has designated closures and seasonal use restrictions to protect natural resource values, which would in turn protect special status plant occurrences in ACECs, administrative sites, potential recreation sites, listed cultural sites, paleontological sites, big game winter range, RCAs containing special status species and their habitats, and within 0.6 mile of sage-grouse leks. The limitations for mining activities in these areas would decrease the level of potential ground disturbances supporting mineral extraction, and decrease the potential for effects on special status plant species occurrences and habitats. All other areas where mining would be permitted would have the potential to affect special status plant species through soil disturbances, erosion, and noxious weed and other invasive plant infestations, which would result in habitat degradation and reduction in individual plant species and/or plant occurrences.

Off-Highway Vehicles. With OHV and mechanized vehicle use restrictions, special status plant occurrence areas would be protected from both short- and long-term effects from OHV and mechanized vehicle use. Areas designated as closed to OHV and mechanized vehicle use would increase the potential for native plant and special status plant species to re-occupy areas previously disturbed by this use. The continuation of OHV and mechanized vehicle use on designated roads and trails would potentially affect special status plants and their habitats, primarily through noxious weed infestation and proliferation, trampling, soil compaction, and habitat degradation. OHV designations for this alternative provide more protection for special status plants than Alternative A, D, and E, but less than Alternative B.

Transportation and Roads. Road maintenance and seasonal road closures would be implemented to protect natural resource values and to reduce road damage, potentially reducing the effects to special status plant species. Existing roads and transportation routes would have the same effects on special status plant species occurrences and habitats as Alternative A.

Recreation. Restrictions on the types and amounts of recreation use would reduce effects to special status plant species. Limited recreation developments and dispersed site rehabilitation would further reduce affects. However, in areas where high recreation use continues, trampling and noxious weed introductions could affect special status plant species and their habitat.

Areas of Critical Environmental Concern. RNAs and ACECs provide suitable habitat and contain special status plant occurrences, providing protection from other resource actions, with the same effects as Alternative A.

Wildland Fire Management. Fire suppression activities and prescribed fire would have the same effects as Alternative B. Additional management emphasis under this alternative would be implemented to rehabilitate burned areas, and to use prescribed fire to restore natural plant communities. There would be more treatments and more acreage treated than under Alternative B, increasing the potential short-term effects and decreasing the potential long-term effects.

Rangelands. Native rangeland plant communities would be maintained or improved with emphasis toward attaining ecological status and minimizing commodity production. Rangeland plant communities would be more widespread and variable, resulting in improved habitat conditions for special status plant species. Reestablishment of native plants in areas currently in poor condition from nonnative seeding would improve plant cover and reduce erosion, resulting in less competition and improved habitat conditions for special status plant species.

Desirable nonnative seedings would be managed to diversify composition and structure of selected nonnative seedings with emphasis on natural values and other resource objectives. This would reduce competition from invasive plant species, and improve habitat conditions for special status plant species.

Wildland fire for resource benefit and prescribed fire would be used to promote the DRC in the range plant communities. Short- and long-term effects would be similar to Alternative A.

4.7.1.3.5 Alternative D

Direct Effects

Management would be directed by the individual plant species requirements and emphasizes maintenance and enhancement under this alternative, the same as Alternative A. This alternative implements additional management emphasis for the development of new projects that would cause more ground disturbance than Alternatives A, B, and C.

Indirect Effects

Grazing Management. Livestock management emphasis for sustainable livestock grazing in the AMU and the CMPA while meeting natural resource management objectives would increase effects of livestock grazing on special status plant species in comparison to Alternatives B and C through increased use and acreage of use. The effects would be less under this alternative than Alternatives A and E, due to the emphasis for adjusting interim and long-term grazing management and stocking levels in accordance with results of monitoring studies, allotment evaluations, and rangeland health assessments to meet natural resource objectives.

Energy and Minerals. Locatable mining activities, leasable mineral activities, and saleable minerals would be the same as Alternative A, with additional restrictions to protect natural resource values, which would provide for the protection of special status plant occurrences in BLM administrative sites, potential recreation sites, listed cultural sites, paleontological sites, big game winter range and their designated critical habitat, some areas within ACECs, and within 0.6 mile of sage grouse leks. The limitations for mining activities in these areas would decrease the level of potential ground disturbances supporting mineral extraction, and would decrease the potential effects on special status plant species. All other areas where mining would be permitted would have the potential to adversely affect special status plant occurrences and their habitats by degrading other resources such as soils and vegetation, eventually resulting in habitat loss.

Off-Highway Vehicles. OHV and mechanized vehicle use would continue to affect special status plant species on 25,286 acres designated as open 656,590 acres designated as limited to existing roads, ways and trails; and 794,496 acres designated as limited to designated roads, ways, and trails. More acres of land in the Planning Area would be closed to OHV and mechanized vehicle use than Alternative A, but less than Alternatives B and C. Cooperative management with OHV and mechanized vehicle clubs would be sought; group events would be allowed, increasing the potential effects to special status plant species from trampling, noxious weed infestations, and increased ground disturbance.

Transportation and Roads. Since roads would be the primary source for noxious weed introductions to the area, existing roads, particularly the high use roads, would affect soils and vegetation resources, including special status plant species. New road development could increase these effects throughout the Planning Area. Erosion, compaction, sedimentation, and vegetation damage resulting from road use, maintenance, and construction could degrade habitat conditions for special status plant species.

Recreation. Overall increased recreation use would increase the effects of trampling and noxious weed introductions on special status plant species and their habitats. Providing additional recreation developments and allowing tourism opportunities would further increase these effects. In areas where high recreation use continues, trampling and noxious weed introductions could affect special status plant species and their habitat. The emphasis to develop recreational

opportunities that would be consistent with other resource objectives may provide more protection for special status plant species through coordination and cooperation.

Areas of Critical Environmental Concern. Many of the RNAs and ACECs provide suitable habitat and contain special status plant occurrences. These areas provide protection from other resource actions, with the same effects as Alternative A.

Wildland Fire Management. Wildland and prescribed fires would have the same effect on special status plants as Alternative A. Fire suppression of wildland fires could reduce or increase the adverse effects to special status plant species, depending on where they occur, the intensity of the fire, the level of disturbance, and the condition of the surrounding plant community. More emphasis would be on harvesting by-products from fuel treatments, which could increase the effects to special status plants due to an increase in ground disturbance and invasion of noxious weeds. Additional management emphasis under this alternative would be implemented to rehabilitate burned areas, and to use prescribed fire to restore natural plant communities. This alternative would provide for more fuel reduction treatments and more acreage treated and affected than under Alternatives A, B, and C.

4.7.1.3.6 Alternative E

Direct Effects

Management would be directed by the individual plant species requirements and emphasizes maintenance and enhancement under this alternative, the same as Alternative A. This alternative implements additional management emphasis for commodity uses and the development of new projects that would cause more ground disturbance than Alternatives A, B, C and D.

Indirect Effects

Noxious Weeds. The emphasis in management for the control/treatment of noxious weeds from natural resource areas to commodity protection could potentially have an adverse effect on special status plant species and habitat areas.

Grazing Management. Maximizing livestock grazing would have a greater effect on special status plant species due to the increase in ground disturbance and resulting noxious weed infestations, increased trampling, and vegetation removal. Additional ground disturbance caused by an increase in rangeland projects, and maximizing livestock use throughout the Planning Area, would cause more effects to special status plant species, soils, biological soil crusts, and vegetation cover. Relinquished permits would be re-allocated to other permittees, opening up more ground to grazing and increasing the effects to special status plant species and their habitat.

Energy and Minerals. Mineral and energy development would be maximized under this alternative, increasing the acreage of potential soil disturbances, thereby increasing the adverse effects on special status plants. Negative effects on special status plant species and other resource values could increase due to the increased level of ground disturbance, spread of noxious weeds, and limitations on protecting natural resource values on more acres because of additional mineral and energy development and roads to support those developments.

Off-Highway Vehicles. OHV and mechanized vehicle use could affect special status plant species, because most of the AMU would be designated as open to OHV and mechanized vehicle use. Maximizing OHV and mechanized vehicle use on 681,874 acres designated as open 510,504 acres designated as limited to of existing roads, ways, and trails; and 283,994 acres designated as limited to of designated routes could increase the adverse effects to special status plant species and their habitat. Organized group events would be encouraged, increasing the potential for effects to special status plant species and their habitat.

Transportation and Roads. Since roads would be the primary source of noxious weed introductions to the area, existing roads and newly developed roads to maximize commodity uses would have an effect on special status plant species and their habitat. New road development would increase the potential effects to special status plant species and their habitat.

Recreation. Recreation management would emphasize improvements, establishment of new recreation sites, and promotion of tourism, which would affect special status plant species and habitat through trampling and introducing noxious weeds.

Wildland Fire Management. Wildland and prescribed fires would have the same effects on special status plants as Alternatives A and D. This alternative would include more fuel reduction treatments with more acreage treated and affected than Alternatives A, B, and C, which could affect special status plant species.

Rangelands. Native rangeland plant communities would be maintained or improved, the same as Alternative A, with the effects greater in magnitude due to the emphasis on commodity uses.

Desirable nonnative seedings would be managed to maintain vegetation composition and increase forage. Many of the seedings of crested wheatgrass infested with invasive and undesirable species would be rehabilitated. This action would reduce weeds and prevent additional invasive plant infestations, and reduce the potential for special status plant species habitat degradation.

Prescribed fire and mechanical vegetation removal would be implemented to promote commodity uses in rangeland vegetation. These activities would result in short-term damage to vegetation, soil disturbance, compaction, erosion, and runoff. With the application of BMPs, restoration or rehabilitation of these areas could reduce these short-term effects, and prevent noxious weed infestations that could degrade habitat conditions of special status plant species. Long-term effects of these vegetation manipulation practices in vegetation communities would reduce undesirable dominant woody vegetation, thereby decreasing competition for other resources, releasing desirable plant species, increasing native plant diversity and community structure, preventing infestations of noxious weeds and other invasive species, and reducing the potential for special status species habitat degradation.

4.7.1.4 Summary of Effects

Under Alternative A, special status plant species and their habitat would likely continue at their current level of individual and occurrence numbers, although commodity uses could allow for a reduction. Mitigation would occur on a case-by-case basis rather than on a watershed or larger scale. The major effects to special status plant species would be from OHV use, wildland fire (usually short term), noxious weed infestations (long term), livestock and wild horse grazing, and recreation uses.

Under Alternative B, natural processes would determine the outcome of habitat conditions for special status plant species. Disturbances from permitted activities would be eliminated, along with restoration and enhancement projects. Wildlife and wild horses effects would continue, while livestock grazing would be minimized or eliminated, reducing effects on special status plant species and their habitats. The major effects on special status plant species would be from noxious weed infestations (long term and adverse), frequency of wildland fires or potential for catastrophic fire, and lack of restoration and rehabilitation of disturbed sites.

The overall effects of Alternative C on special status plant species would be projected to be less than Alternative A, D or E; however, recovery rates for species habitat would be slow. Wildlife and wild horse effects would continue. Livestock grazing would be minimized or eliminated in some areas, reducing effects on special status plant species. The establishment of ACECs and other areas where management actions would be restricted in order to protect natural resource values would have an effect on those special status plant species occurring within those areas. Management areas that protect natural resource values would provide special status plant species adequate boundaries and habitat representation for their continued existence. Emphasis would be to reach a balance for the protection of special status plant species habitats and occurrences with restoration and enhancement.

Under Alternative D, special status plant species and their habitats could be affected by an increase in commodity and recreation uses. The establishment of ACECs and other areas where management actions would be restricted to protect natural resource values would have a beneficial effect on special status plant species. The emphasis on restoration and enhancement would provide additional protection and maintenance measures for special status plant species that occur near project activities. The overall effects of Alternative D on special status plant species could lead to increased protection in the long term, with short-term effects to individuals and habitat.

The overall effects of Alternative E on special status plant species would potentially result in declines or lowered levels of individuals and occurrences that may eventually contribute to federal listing of some plant species. Species protection would be individually prioritized, with little regard for overall habitat and watershed health. The management goal and objective for special status plant species would not be met for species found in heavily affected areas and where general ecological health would be critical to species survival. While this alternative would provide for maintenance of special status plant species, some sites could receive effects on habitat conditions that would require mitigation, and may fall short of meeting management goals and objectives.

4.7.1.5 Cumulative Effects

Cumulative effects to special status plant species would be habitat loss, destruction of individual plants, habitat conversion to less than marginal habitats, and loss of habitat connectivity and variability.

Noxious weed management may have the greatest potential to affect special status plant species and habitat conditions under all of the alternatives.

Cumulative effects resulting from activities implemented on adjacent lands, the elimination of special status species on other lands affecting the potential listing of a species that occurs on public lands, and global warming could have long-term effects on special status plant species. Although the BLM could not change the way other land owners manage special status plant species, the development of conservation agreements and species management plans with other land managers/owners could potentially reduce these off-site effects to special status plant species. The BLM would consider these effects in the analysis of all proposed management activities that affect special status plant species and their habitats.

The use of competitive plant species for restoration and rehabilitation could have a cumulative effect on special status plant species, and these species should not be used in or near plant occurrence areas. Competition for resources and habitat could decrease special status plant numbers and reduce available critical habitat.

Herbicides used to control noxious weeds could have a cumulative and potentially detrimental effect on special status plant species if they were used incorrectly. Any control treatments should be used very cautiously in or near plant occurrence areas.

4.7.2 Animals

4.7.2.1 Goals and Objectives

Goal – Maintain, restore, or improve special status plant populations and animal habitats; manage public lands to conserve or contribute to the recovery of threatened or endangered species; and prevent future ESA listings.

Objective 2. Conserve T&E fish and wildlife species and the ecosystems on which they depend.

Objective 3. Manage big sagebrush communities to meet the life history requirements of sagebrush dependent, special status species.

Objective 4. Evaluate habitat requirements and conditions for the reintroduction of extirpated species into historic habitat in the Planning Area.

Objective 5. Maintain, restore, or improve bighorn sheep habitat and allow for maintenance or further expansion of bighorn sheep populations as defined by the ODFW in Oregon's Bighorn Sheep Management Plan.

4.7.2.2 Assumptions

No management actions would be undertaken that would be likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat pursuant to section 7(a)(2) of the ESA.

Management of Threatened or Endangered species would be in accordance with recovery plans and consultation with the USFWS.

Identification in the FMP of areas that possess significant natural resource values would assist in reducing effects special status species during fire suppression and rehabilitation activities.

The ODFW and/or USFWS retains jurisdiction over the management of special status species populations. BLM manages the habitat for these species in cooperation with the ODFW and USFWS through plans for various species. BLM management emphasis of special status species indicated in the alternative themes of this plan would be through recommendations to and in coordination with these agencies.

The management actions found in Water Resources, Riparian/Wetlands, Rangelands, and Woodlands sections would directly and indirectly maintain, restore, or improve habitat for special status species. As stated above in the Assumptions section of the Fish and Aquatic Habitat analysis, there would be a strong link between the management actions and the effects of these actions on the quality and quantity of special status species habitat.

References to either mule deer and/or Greater sage-grouse habitat also include habitat for a myriad of species that would be sagebrush dependent such as sage sparrow, Brewer's sparrow, sage thrasher, pygmy rabbit, sagebrush vole, and others. Some of these would also be special status species such as sage-grouse, pygmy rabbit, sage sparrow, and sage thrasher, and many would be on the list of neotropical migratory birds. Through the use of the DRCs for the management of and restoration of sagebrush steppe habitat, it would be anticipated that the effects of these actions would promote habitat improvements not solely for mule deer and sage-grouse but for many of these other species.

The Migratory Bird Executive Order of 2001 calls for federal agencies to support the conservation intent of migratory bird conventions by integrating conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions and to restore and enhance the habitat of migratory birds. The intent of actions described such as reducing juniper encroachment into sagebrush or riparian habitats, would be to restore these habitats and improve habitat for migratory birds that depend on these habitats as well as other species such as sage-grouse. While these actions may have effects on migratory birds by reducing some habitat components in the short term, the anticipated long-term effects would be an overall improvement in habitat quality and quantity as well as reduction of the occurrence and effects of catastrophic fires. Since the list of migratory birds (50 C.F.R. 10.13) would be extensive, management actions could not cover restoration or enhancement of all the migratory birds that would be found in the Planning Area. Actions that have the effect of habitat restoration for one suite of migratory birds (sagebrush dependent) may reduce habitat for another suite (woodland). This may reduce the abundance of those species but does not reduce the overall diversity of bird species found after actions were completed.

4.7.2.3 Analysis of Alternatives

4.7.2.3.1 Effects Common to All Alternatives

Direct Effects

Greater sage-grouse and other special status species use areas would be identified in coordination with the ODFW and/or the USFWS. Habitat management would be coordinated across agency boundaries. Identification of these areas would facilitate management for special status species by reducing or eliminating conflicts with other resources such as energy and mineral development, and would allow for seamless management to improve structure and diversity of habitat across the landscape.

Special status species habitat management and monitoring would be coordinated with the ODFW, USFWS, and other cooperators, as appropriate. The BLM would coordinate with the ODFW and/or USFWS on the management of special status species populations throughout the Planning Area. Recommendations for transplants of special status species onto or removal from public lands would be coordinated with the ODFW and USFWS.

Habitat conditions for reintroduction of locally or regionally extirpated species such as Columbia sharp-tailed grouse and mountain quail, would be evaluated for successful reintroduction. This would enable an assessment of whether these species could be reintroduced to areas in which they historically occurred and have a higher probability of successful reintroductions.

In the Steens Mountain Wilderness Area, all actions such as transplants, trapping, distribution of medicine, emergency situations, and maintenance of existing guzzlers would be authorized in accordance with the Steens Act, the Wilderness Act, and Appendix B of House Report 101-405 of the 101st Congress. Minimum tool analysis would be completed on all actions. Where these same actions occur in WSAs, the WSA IMP would be followed. Depending on minimum tool analysis, actions for population management of special status species in wilderness areas could be restricted to those that do not affect wilderness characteristics or minimize the effects. This could limit the ODFW's ability to manage bighorn sheep populations. Actions in WSAs would be limited to those that would be compatible with the WSA IMP. This could limit improvements that would expand special status species into identified historic habitat.

Indirect Effects

Water Resources. BMPs at the activity plan level would be implemented to reasonably prevent degradation of water quality.

Noxious Weeds. Noxious weed prevention and control would continue to be a priority in all alternatives. Noxious weeds invade native plant communities, including riparian vegetation, resulting in degraded plant community structure, cover, composition, and diversity. Erosion and runoff tend to increase as a result; reduced cover may also result in reduced shade and increased water temperature. The priority on noxious weed prevention and control would reduce these effects on the special status species dependent on them.

Fish and Wildlife. As noted in Chapter 2, maintenance, restoration, or improvement of aquatic habitat to support fish and wildlife would be primarily addressed in the alternatives identified under Water Resources, and Vegetation. The broad objective under Fish and Wildlife to maintain, restore, or improve habitat, generally promotes habitat improvements for special status species. Monitoring special status species and their habitat would increase information about specific habitats used and the direction for habitat improvement or restoration.

Grazing Management. Whenever existing grazing management practices on public land would be determined to be contributing to non-attainment of resource objectives, appropriate actions would be implemented to meet habitat and other resource objectives. In areas where grazing would be determined to be contributing to nonachievement of special status species objectives, changes in management would be implemented.

Areas burned by wildland or prescribed fire would be rested for a minimum of two growing seasons, and grazing would resume only when monitoring data supported achievement of restoration objectives. This would allow vegetation to increase in density, and would reduce erosion and sediment delivery to water bodies. The effect would be improved habitat conditions for special status species.

4.7.2.3.2 Alternative A

Direct Effects

Bat gates would be installed at the entrances to abandoned mines to protect known roost sites from disturbance by recreationists. Priority would be given to mine sites known to contain large numbers of bats (e.g., maternity roosts, hibernacula) and sites most likely to be disturbed by recreationists.

This would protect bat colonies from disturbances that could cause abandonment of maternity roosts and subsequent reduced reproductive success, and from disturbances in winter that could cause hibernating bats to awaken, with subsequent increased risk of mortality. The gates would allow bats egress and ingress to abandoned mine sites while also providing for public safety.

Variable desired conditions of big sagebrush cover would be determined on a site-by-site basis to benefit special status species. This would allow a focused approach to target sites most in need of structural improvement or most likely to increase habitat suitability for sagebrush-dependent special status species.

Management would be in accordance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. This would result in better survival of fledglings by minimizing the effects of actions that could cause mortality, and would require other resources to be managed so that identified goals and objectives for sage-grouse would be met and long-term range conditions would improve.

Whether habitat improvements, if any, would be needed in order to create suitable habitat for reintroduced Columbia sharp-tailed grouse, mountain quail, and other species would be determined. Implementation of any necessary habitat improvements prior to reintroduction would increase the likelihood of establishing successful self-sustaining populations of these special status species.

Transplants, reintroductions, and natural expansion of bighorn sheep populations would be allowed.
These actions would maintain healthy viable herds of bighorn sheep populations, prevent overuse of resources, and would reduce the likelihood of increased disease and parasite transmission. Poor quality habitat in historic bighorn sheep range would be improved, thereby enabling bighorn sheep that naturally expand into historic habitat to be more successful in establishing viable herds. The ODFW would be authorized to trap bighorn sheep when they determine excess animals would be available. This would protect the range from resource overuse, and enable the ODFW to continue establishing herds in suitable historic habitat and to engage in wildlife trades with other states.

Since water would be an essential requirement of bighorn sheep, up to ten sites would be identified for development of low visual impact, natural water sources or wildlife guzzlers in historic bighorn sheep habitat. In some cases, lack of water may limit distribution and prevent successful reestablishment of bighorn sheep in historic habitat. Development of water sources would increase the likelihood of viable herds becoming established in historic habitat.

Indirect Effects

Soils and Biological Soil Crusts. BMPs would be implemented to protect and manage soil for all ground-disturbing activities. This would provide long-term stability of this habitat type for special status wildlife species dependent on sagebrush habitat.

Riparian and Wetlands. Activity plan level management prescriptions and/or WQRP prescriptions would be developed but would be based on reach or site scale assessment only, and on site-specific resource management objectives. Management would not be guided by prioritization across the Planning Area, but rather by site-specific management goals with respect to water quality. Improvements to riparian vegetation, including increased vegetative structure and cover, could occur at these specific locations, with a proportional increase in habitat value for special status species.

Existing grazing and recreation systems and improvements to maintain PFC would continue. Outside of areas affected by WQRPs or other special planning requirements (e.g., WSRs), riparian/wetland areas would not be managed to attain advanced ecological status, although in many areas management to maintain or promote PFC may also promote advanced ecological status. In some locations, vegetation communities in PFC may not provide as much structural diversity and suitable habitat for special status species as communities in advanced ecological status.

Sources of localized tree and shrub source material for restoration would continue to be established and maintained. These sources would assist in restoring riparian vegetation and in preserving genetic integrity of riparian plants. This would contribute to the viability of riparian habitat, which provides essential habitat components for special status wildlife species.

Roads within or affecting riparian areas would be maintained, and developed in riparian areas in conformance with existing laws and regulations. Although roads could be designed to minimize effects on special status wildlife species, development and management of roads would be based on all resource management objectives. The current effects of roads on special status wildlife species would continue, including displacement due to vehicle noise and human disturbance, and forage, cover, and breeding habitat due to the reduction of riparian vegetation density and coverage.

Beaver populations would be allowed to expand naturally under this alternative. The effects on special status wildlife species from beaver expansion and subsequent beaver pond development could include increased invertebrate prey and water sources for special status bat species, and increased breeding sites for special status amphibian species.

Woodlands. Late-seral stage ecological characteristics of old growth western juniper woodlands would be maintained by mechanical removal of younger trees. Although this management action would promote the retention of old-growth western juniper woodlands, none of the special status wildlife species that could occur in the project area would be dependent on this habitat type for successful reproduction. Some special status bat species and cavity nesting birds might use cavities in old trees; these trees would not be removed. Mechanical removal of younger trees may cause temporary displacement to any special status wildlife species that would be present. After activity ceased, however, these species could return to the areas. To the degree that management actions were in accordance with the Migratory Bird Executive Order, minimal disturbance

to nesting special status bird species could be expected. Removal of younger trees could reduce the risk of catastrophic fire, which would help to retain this habitat type for special status wildlife species.

All lightning- and human-caused fires would continue to be suppressed. This would eliminate short-term potential effects of fire, such as loss of habitat; however, the long-term effects could include more catastrophic fires and increased habitat loss.

Western juniper would be mechanically removed from quaking aspen and mountain mahogany stands. In quaking aspen stands where juniper has the potential to dominate, the stands would be rehabilitated by prescribed burning. Both quaking aspen and mountain mahogany provide important habitat components (e.g., forage, cover, nesting) for numerous special status species. Since juniper invasion could eventually cause decreased effectiveness of these habitat types, management actions that maintain and restore these communities would maintain habitat viability for special status wildlife.

In sagebrush habitats, increased juniper cover prevents the growth of grasses, forbs, and eventually sagebrush. Younger western juniper trees would be mechanically removed from sagebrush habitats and prescribed fire would be used to reduce the influence of younger western juniper in sagebrush habitats. This would prevent the eventual loss of habitat required by sagebrush-dependent special status species due to juniper invasion. Potential effects from these management actions would be the same as those described above. Compliance with the Migratory Bird Executive Order would help to reduce disturbances to any reproductive special status species (i.e., young birds would have fledged and young mammals would be mobile).

Rangelands. The ecological status of native plant communities would be maintained or improved. Plant density and coverage in these communities would be maintained or increased. These management actions would contribute to the maintenance of viable communities for special status species.

Desirable nonnative seedings would be managed to maintain vegetation composition and meet S&Gs. Maintenance of nonnative seedings can contribute to the loss of suitable habitat for sagebrush-dependent special status wildlife species. Compliance with Standard 5 of the S&Gs would promote spatial distribution of suitable habitat for these species across the landscape with a density and frequency of species that would promote reproductive capability and sustainability. To the extent that nonnative seedings provide rest and deferment for the adjacent native vegetation communities, competition between livestock and sagebrush dependent species would be minimized.

In sage-grouse habitat and/or deer winter range, native vegetative species diversity would be maintained or restored through interseeding of native species on 200 acres. This would result in a slight increase in suitable habitat for sagebrush dependent species. The effectiveness of this effort would depend on the location of the interseeding in relation to existing suitable habitat.

On 50 percent of nonnative seedings where brush cover is high, brush beating and/or disking in a mosaic pattern would be allowed. The natural reestablishment of sagebrush in nonnative seedings provides suitable habitat for sagebrush-dependent special status wildlife species. Management actions that reduce the presence of sagebrush could contribute to the loss of habitat for these species. When conducted in sage-grouse winter habitat, brush treatments could cause loss of sagebrush for cover and forage, and could result in lower winter survival for sage-grouse. Coordination with wildlife resource specialists could help to incorporate known areas of sage-grouse occupancy and high value habitat areas into the design of the management action, thereby minimizing these effects. Loss of reproductive output for special status species could be reduced to the extent that management actions would be implemented in accordance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. Effects would be further analyzed on a case-by-case basis specific to each activity.

Areas burned by wildland fire would be rehabilitated to protect soil, water, and vegetation resources, which could reduce future effects, such as the conversion of the burned landscape into one dominated by cheatgrass. This would constitute a loss of habitat for sagebrush dependent special status species. The inclusion of sagebrush in rangeland fire rehabilitation seeding mixtures could promote a more rapid return to conditions required by sagebrush dependent wildlife species.

Both prescribed fire and mechanical removal would be used to create a mosaic of multiple successional stages, reduced dominance of woody vegetation, and release of desirable plants. Current and historic suppression of wildland fires, along with other factors, has contributed to an increase in the density of sagebrush stands and a decrease in grasses and forbs within those stands. A reduction in grasses and forbs has resulted in less suitable habitat for sagebrush dependent wildlife. Wildlife would be temporarily displaced during management actions, but could return after activities ceased. Depending

on where these management actions were performed, they could result in the short-term loss of suitable habitat, and a long-term progression of habitat into more suitable conditions for sagebrush-dependent species.

Avoiding the treatment of critical habitat components for sage-grouse such as winter habitat and brood-rearing habitat, would mitigate potential effects. As restoration of these areas occurred, better habitat for sagebrush-dependent species could develop. Long-term effects of this practice would be reduced dominance of woody vegetation and release of desirable plants, which could result in increased growth of grasses and forbs, thereby providing forage for sage-grouse. As with brush beating, compliance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush-Steppe Ecosystem Management Guidelines would reduce potential effects to reproducing wildlife. Effects would be further analyzed on a case-by-case basis specific to each activity.

Noxious Weeds. The current integrated management of weeds would continue. Control on disturbed areas would be emphasized, as would inventories of new infestations. Noxious weeds displace high-value native vegetation needed by special status wildlife and consequently decrease available habitat. Management actions to control and eradicate noxious weeds would restore suitable habitat for wildlife and slow the expansion of weeds into currently unoccupied areas. Short-term limited disturbance could occur to special status wildlife species during weed control activities. In the long term, however, improvements in habitat quality and quantity would result from weed control. The habitat improvements from noxious weed control would correspond to the decrease in noxious weeds and the degree of restoration that occurs after weed control actions.

Fish and Wildlife. Approximately 9,000 acres of deer winter range, which would be in unsatisfactory condition would be reseeded with sagebrush and a mix of other native and nonnative species in coordination with the USFWS, ODFW, and permittees. This management action could contribute to an increase in suitable habitat for sagebrush-dependent special status species. Available habitat would increase to the extent that the reseeding occurs near habitat occupied by species or creates conditions that could eventually be used by special status species.

Opportunities for the improvement and/or restoration of fish and wildlife habitat through vegetation manipulation, water developments, and other measures would be identified and implemented. When these improvements occur in habitat occupied by special status species or in potentially suitable habitat, it would be assumed that they would also increase the habitat available for these species. Environmental reviews completed for the projects would help to identify and mitigate any conflicts.

Energy and Minerals. Current management of locatable mineral entry would continue. Locatable mineral development could occur in some locations within the Planning Area where not restricted by other regulations. Depending on the size, nature, and location of the development, effects on special status wildlife species could include loss of habitat, displacement, ongoing disturbance due to human presence, and loss of reproductive output. The extent of these effects would vary depending on the scale of the operations, nature, and proximity to habitats (e.g., sage-grouse lek sites and brood-rearing habitat, bighorn sheep range, raptor nest sites, and maternity roosts and winter hibernacula for bats) of special status species.

Leasing and development of oil and gas, geothermal, and solid leasable mineral resources would continue under the current management framework. NSO or other seasonal or special stipulations would be applied and identified by an ID team immediately prior to leasing. Effects to special status wildlife species would be similar to those described for locatable minerals. Special stipulations developed by the ID team would partially or fully mitigate these effects.

Saleable minerals development would be permitted under this alternative on a case-by-case basis. Renewable energy authorization would be managed under current planning framework, with no exclusion or avoidance areas except where current law or regulations require. Effects to special status wildlife species from saleable minerals and renewable energy development would be similar to those described for locatable minerals.

Existing laws, regulations, and policies would minimize the effects from energy and mineral activities on special status wildlife species and their habitat. Measures to reduce effects include avoiding areas, limiting surface disturbance, limiting travel off existing roads, implementing seasonal closures, and reclamation after mine closure. Some effects, such as habitat loss, would require a lengthy time for recovery. Following mine closure and reclamation, special status wildlife species could reoccupy the site if suitable habitat would be present.

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Permanent increases or decreases in AML and forage allocations would not be considered. Due to differences in habitat use, wild horse management produces few effects on the availability of forage for bighorn sheep. Overlapping resource use can occur during droughts, when bighorn sheep would be more likely to move farther away from rimrock areas in search of water.

During severe droughts, wild horses can be gathered under emergency conditions, thereby reducing any conflicts with bighorn sheep.

If forage availability decreased to a large extent, such as through extensive wildfire, emergency gathers would reduce the likelihood of any conflicts with bighorn sheep. Current wild horse numbers would not be considered to limit bighorn sheep populations. If this situation were to change during the life of the Plan, changes in wild horse numbers would be addressed on a case-by-case basis and adjustments could be made accordingly.

Excessive grazing by wild horses can contribute to a decline in sage-grouse habitat. In some areas, grazing by wild horses has contributed to long-term changes in plant communities and has reduced certain habitat components. As with bighorn sheep, increased competition between wild horses and sage-grouse could occur during droughts. Failure to conduct emergency gathers, if necessary, could result in limited plant regrowth. Less available forage, in conjunction with drought, could result in lowered reproduction for special status wildlife species. Promoting proper gate management by livestock permittees could prevent concentrations of horses in small areas, thereby avoiding a situation that could result in a decline in available forage for special status species. As forage conditions in each HMA would be annually monitored, wild horse forage use could be adjusted by management actions to help maintain a thriving natural ecological balance.

New water developments for wild horses could be used by special status wildlife species. If wild horses concentrate around these sources, soil compaction and trampling of vegetation could lead to a loss of habitat function and a decrease in suitable habitat for special status species. New water developments might distribute horses over areas formerly used only sporadically or lightly. The potential effects would need to be determined on a case-by-case basis when decisions were made as to where the new water sources should be sited.

Grazing Management. Existing grazing management would continue within the AMU and the CMPA. Interim adjustments, long-term grazing management, and stocking levels would continue to be adjusted in accordance with the results of monitoring studies, allotment evaluations, and rangeland health assessments. Livestock management practices and administrative solutions would continue to be implemented. These management actions promote livestock use that would be balanced with forage production, which assures that habitat conditions for special status wildlife species would not be degraded. General riparian and upland vegetation conditions described in Chapter 3 would be maintained, although the current management has generally promoted an upward trend in both riparian and range condition. With improving vegetation condition, habitat for special status species would also likely improve.

Increased competition for food and cover between sage-grouse and livestock could occur during droughts. Failure to adjust livestock use during drought could result in limited plant regrowth and overuse in wet meadows and riparian areas, which would reduce forage and cover for sage-grouse and other sagebrush-dependent special status species. As each allotment would be evaluated through monitoring, appropriate changes in grazing management would be implemented, thereby promoting progress toward habitat objectives and standards for rangeland health. Any necessary adjustments in grazing management practices would reduce the likelihood of the effects described above.

Rangeland improvements such as fences could exclude livestock from critical habitat required by special status wildlife species. Such fences could also impede the movement of wildlife and potentially cause mortality due to entanglement. Compliance with BLM fencing requirements would reduce these potential effects. Where livestock would be excluded from streams, springs, riparian habitat, and wetland areas, more forage and cover would be available for special status wildlife species. Changes in plant communities due to livestock overgrazing would not occur, and improvements in habitat conditions would occur by reducing the likelihood of resource damage from concentrated animal use.

Wildland Fire Management. All wildland fires would be suppressed. Although fire suppression in the short term would maintain current habitat conditions for special status wildlife species, in the long term, larger, hotter fires could occur that could contribute to degradation of native plant communities and cause more frequent fire cycles.

Mechanical treatments and/or prescribed fire would be used to reduce fuel loading in areas where the fire regime has been altered. This action would help to reduce the potential for increased fire cycles and subsequent conversion of sagebrush habitat into an annual grassland or undesirable nonnative community. These management actions would help to maintain the viability of habitat for special status species. Over the long term, reductions in fuel loading would decrease the likelihood of catastrophic fire, which in turn would reduce the likelihood of loss of large portions of habitat needed by special status species. Short-term effects on any special status species could be minimized to the degree that management actions comply with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines.

Burned areas would be assessed for rehabilitation, and would be rehabilitated using a combination of mechanized and nonmechanized equipment. Restoration projects in areas where conditions would not be recovering naturally would improve habitat value for special status species. Disturbances to special status species from these activities would be unlikely since suitable habitat would not be present prior to restoration. In areas where natural recovery would be limited, a mixture of native and desirable nonnative plant species would be used to rehabilitate burned areas. Rehabilitation with native species would be more likely to provide suitable habitat for special status wildlife species. However, seeding nonnative species might be necessary to prevent invasion of weeds and would be more likely to provide future suitable habitat for such species.

Lands and Realty. Land acquisitions could potentially help to meet the management goals and objectives for special status species if they result in the acquisition of land important to all or part of the life history of special status species. The objective to acquire land with high public resource values would be consistent with the management of special status wildlife species. Habitat for special status wildlife species would be considered to have high public resource values and would be a priority for acquisition. The disposal of critical habitat for special status species would be prohibited, or in the case of exchange, weighed against the values and benefits to acquire in the transaction. Any such disposal might jeopardize the species' existence or contribute toward the need to list these species as federally T&E.

New withdrawals would be considered on a case-by-case basis. Public access development would be acquired on a case-by-case basis; however, under this alternative, no specific consideration would be given to protection of other resources, which would be provided in other alternatives.

New roads may be constructed around private lands to provide access to public lands. The construction and maintenance of these roads, if sited in critical habitat, could have both short- and long-term effects on special status species.

The management actions associated with authorizations of new ROWs, utilities, and permits for large-scale powerlines, fiberoptic cables, and pipelines would be conducted consistent with existing land use planning, regulation, and laws. ROWs would be located within designated corridors on a case-by-case basis. Siting additional disturbances within previously disturbed sites, such as designated powerline corridors, could reduce effects to special status wildlife species because the assumption would be that these species have already adapted to or been displaced by the developed corridors.

Negotiations and feasibility of consolidating parallel overhead powerlines in crucial sage-grouse habitat may continue as opportunities arise. Such consolidation may result in less predation from perching raptors.

No new effects would occur to bighorn sheep and other resources at Buckskin Mountain from existing communications development. Any ongoing effects would continue indefinitely. Consideration of new communications uses at Buckskin Mountain would be deferred until definitive proposals were received.

Effects to special status wildlife species from such projects would be similar to those described above for energy and mineral activities. Effects to special status wildlife species from new projects would be analyzed on a case-by-case basis in NEPA documents and would identify any effects that must be reduced or eliminated through mitigation.

Transportation and Roads. This alternative would maintain the existing transportation and roads management, while implementing the provisions of the Steens Act that apply to transportation. Only currently mapped roads would be considered in this resource area; unmapped roads would be inventoried and managed based on an EA that would include consideration of effects on special status species.

The potential effects of the operation and maintenance of roads on special status species would vary depending on the location of the road and its proximity to habitats of critical special status species (e.g., sage-grouse lek sites and brood-rearing habitat, bighorn sheep winter range and travel corridors, and raptor nest sites). Roads that lead to abandoned mine sites could encourage recreational exploration of the mines, with resulting disturbance to any maternity roosts and winter hibernacula for bats. Installation of bat gates would prevent such occurrences.

Off-Highway Vehicles. OHVs and mechanized vehicles would continue to be managed in accordance with the existing open, limited, and closed OHV designations. OHVs and mechanized vehicles can cause short- and long-term disturbances to individuals or populations of special status wildlife species. Potential effects due to disturbance include vehicle-caused mortality, poaching, habitat fragmentation, behavior modification, displacement into less suitable habitat, and increased human access into previously undisturbed locations. When OHV or mechanized vehicle use occurs near important breeding habitat, disturbances can lead to a loss or decline in reproduction for special status species. In certain

areas, potential effects due to disturbances would be reduced to the extent that OHV and mechanized vehicle use would be limited to designated roads, ways, and trails, seasonal closures have been implemented, and OHV and mechanized vehicle use would be excluded. The current management situation has already assessed the potential effects of the OHV system; no major effects to special status species would be known. The new management due to the Steens Act does not create any conflicts with special status species.

Recreation. Human encroachment on bighorn habitat can displace sheep and disrupt local migration and movement routes. Current recreation activities have few effects on bighorn sheep and their habitat.

Concentrated recreation in sage-grouse habitat could have the potential to displace birds from the immediate area of use. As long as unoccupied suitable habitat would be nearby, no long-term effects would be expected. However, where suitable habitat would be limited or displacement from habitat components (e.g., leks) occurs, the survival and reproductive output of sage-grouse could be affected. Effects of additional recreation would be considered on a case-by-case basis specific to each activity.

4.7.2.3.3 Alternative B

Direct Effects

Bat gates would be installed at the entrances to abandoned mines and areas would be withdrawn from mineral entry. The effects of this management action would be similar to Alternative A. However, these sites would be withdrawn from mineral entry, which would provide protection for bats from additional mineral entry disturbances.

Natural processes would be allowed to determine future conditions of big sagebrush. In most areas of big sagebrush habitat, there would be no threats to property or human life, and wildland fires would not be suppressed. Management actions do allow consideration of fire suppression in areas of significant resource values. To the extent that habitat for sage-grouse would be considered a significant resource value, fires would be suppressed in those areas. In other places, wildland fires that were not suppressed could change the structure of sagebrush habitat to grasslands.

The reestablishment of natural fire regime could restore natural processes that shape suitable habitat for sagebrush-dependent species. However, historic and current fire suppression, along with weed invasion, has changed sagebrush habitat conditions so that unsuppressed fire could increase the likelihood of sagebrush habitat being converted into annual grasslands. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The lack of flexibility on choice of seed mix might extend the length of time for rehabilitation. If the burned area contained important habitat components for special status species, the increased period of time to achieve restoration would represent a loss of available habitat for that period of time.

To the extent practicable, management would be in accordance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. This would result in better survival of fledglings by minimizing actions that could cause their mortality. It would also require other resources to be managed so that goals and objectives for sage-grouse would be met and long-term range conditions would improve. However, the reliance on passive methods could limit the ability to achieve the Management Guideline's goals.

No assessment would be performed to determine whether suitable habitat conditions would be present for successful reintroduction of Columbia sharp-tailed grouse, mountain quail, and other species; therefore, no habitat improvements would be conducted prior to reintroductions. This would reduce the chances of establishing successful self-sustaining populations of these special status species.

Natural processes would be allowed to determine the natural range expansion of bighorn sheep populations. Poor quality habitat in historic bighorn sheep range would be improved. This would enable bighorn sheep that naturally expand into historic habitat to be more successful in establishing viable herds. Bighorn sheep population numbers would be allowed to exceed management objectives. The ODFW would not be authorized to trap bighorn sheep when excess numbers would be available. No additional introductions and/or transplants would be conducted into identified historic range. These actions would conflict with the ODFWs existing management plan and goals for bighorn sheep, and could result in declines in the range from overuse, declines in herd health and viability; they would also prevent the ODFW’s from engaging in wildlife exchanges with other states.

Up to five sites would be identified for construction of low visual impact, natural appearing water sources in historic bighorn sheep habitat. Lack of water can prevent the successful reestablishment of bighorn sheep in historic habitat. Development of water sources would increase the likelihood of viable herds in historic habitat. Since no transplants into historic habitat would be allowed, the locations of these water sources would need to be near existing populations in order for them to be effective.

Indirect Effects

Soils and Biological Crusts. In the short term, localized declines in soil productivity could occur. In the long term, this alternative would be likely to maintain or improve soils and crusts, which would improve the quality of sagebrush habitat for special status wildlife.

Riparian and Wetlands. The management goals and objectives for riparian habitat and wetlands would produce similar effects as described in Alternative A. However, use of passive measures to achieve restoration objectives might result in a longer period of time to improve riparian vegetation communities and consequently, a longer period of time before suitable habitat conditions for special status wildlife species develop. In the short term, the limited use of active restoration measures and emphasis on passive measures could result in a longer period of time for the development of preferred habitat conditions for special status species. Upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity, with an emphasis on native vegetation. This would help retain and protect edge habitat, which has a high value for special status species.

The management actions for roads could reduce human-caused disturbances to special status wildlife species due to the elimination of alternative routes in riparian/wetland areas and would result in a slight increase in habitat availability. It could also eventually result in an increase in riparian vegetation, which provides important foraging, cover, and breeding habitat for special status species.

Beaver populations would be managed as in Alternative A and the potential effects would be the same.

Woodlands. Fires in old-growth western juniper stands would be allowed to burn. No special status species would be solely dependent on this habitat type. Minimal effects from allowing fires to burn would be expected unless the fire spread uncontrolled to other habitat. In the long term, the size and intensity of fires would likely be reduced as the historic fire regime would be reestablished. Short-term effects such as temporary displacement to some special status species may result from these fires; however, in the long term, allowing the return of fires would likely result in reduced size and intensity of future fires as the historic fire regime becomes established.

Management actions associated with the maintenance, restoration, and improvement of quaking aspen and mountain mahogany stands would rely on natural processes, which could take a long period of time to achieve goals. If natural processes result in an increase in western juniper and a decline in quantity and vigor of quaking aspen and mountain mahogany, a decrease in the available herbaceous understory forage for special status species could occur along with a local decline in the viability of special status species that rely on these habitat types.

Mechanical removal of all younger western juniper trees from riparian and sagebrush habitats would result in an increase in understory forage available for sagebrush-dependent special status species. Relying on natural and human ignited wildland fires to reduce the influence of western juniper in these same habitats would result in a short-term loss of habitat. In the long term, suitable habitat conditions for sagebrush-dependent special status species would develop as long as burned areas were not subsequently invaded by weeds.

Rangelands. Rangeland management would emphasize passive methods and natural processes to achieve goals and objectives. Such methods would probably take longer to achieve suitable habitat conditions for special status species. Opportunities to improve habitat using active methods would not be implemented. In some places, management that emphasizes passive methods and natural processes could result in less suitable habitat for sagebrush-dependent special status species due to invasive weeds and other undesirable nonnative species such as cheatgrass. Management actions would not include the rehabilitation of burned areas, which could also result in less suitable habitat for these species due to weed invasion and failure of sagebrush to compete successfully with grasses. Nonnative seedings, which do not provide suitable habitat for sagebrush-dependent special status species, might remain established longer than under other alternatives because natural processes would be allowed to determine the re-invasion rate of native species. Providing for and restoring degraded and decadent shrublands would provide improved habitat conditions for sagebrush-dependent wildlife, to the extent that the management actions complied with the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. As active management and restoration of these areas occurred, improved habitat

would be available for sagebrush-dependent wildlife. Opportunities to use livestock grazing to suppress competition and allow the establishment of sagebrush habitat could not occur under this alternative.

Noxious Weeds. The management goals and objectives for noxious weeds would produce similar effects as those described in Alternative A. However, the potential for weed invasion might also be greater than in other alternatives because fewer methods of control would be authorized.

Fish and Wildlife. The management emphasis would be on managing habitat for self-sustaining native species. Approximately 9,000 acres of sagebrush would be aerially reseeded onto deer winter range. This could restore and improve sagebrush habitat for sagebrush-dependent special status species. The degree of improvement would depend upon the success rate of the reseeding effort and the number of acres restored to sagebrush habitat. Opportunities would be identified and implemented for the improvement and/or restoration of fish and wildlife habitat through the use of wildland fire, fence removal, or other mainly passive methods. Such improvements could also improve habitat conditions for special status species.

Forage for wildlife would be allocated above management objective levels and wildlife populations would be allowed to expand naturally. This management action would be unlikely to result in reduced forage availability for special status species.

Energy and Minerals. None of the potential effects due to energy and mineral exploration, location, development, and production described in Alternative A would occur because the entire Planning Area would be recommended for withdrawal from locatable mineral entry.

Wild Horses and Burros. The potential effects of wild horses on special status species would be the same as those described for Alternative A. Management actions that allow for permanent increases or decreases in AMLs could allow resource managers to implement adaptive management strategies that would minimize conflicts with special status species. Permanent increases in AMLs would not be assumed to reduce habitat suitability for special status species since wild horses would be maintained at AMLs that ensure a thriving natural ecological balance between wild horse populations and other resource values. The additional methods of population control could decrease the rate of herd growth, thus minimizing potential conflicts with special status species due to high herd numbers.

Grazing Management. No livestock grazing would be authorized in the AMU. The absence of livestock would lead to increased availability of grass and herbaceous plants needed for sage-grouse nesting cover. Competition for forage between livestock and sagebrush-dependent special status species would not occur. Populations of sagebrush-dependent wildlife could increase in the AMU.

Livestock grazing would occur in the CMPA consistent with the Steens Act, but no rangeland projects would be planned or implemented in support of livestock grazing. The S&Gs, including Standard 5, which specifically addresses protection of special status species, would apply to grazing management. Natural resource objectives would be emphasized and would provide greater consideration of special status species.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions. Suppression of wildland fires in habitat used for breeding activities by special status species would preserve the habitat. However, it would also possible that over the long term, such activities could contribute to the occurrence of larger, hotter fires, loss of suitable habitat, increased fire cycles, and weed invasion.

All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The lack of flexibility on choice of seed mix might extend the length of time for rehabilitation. If the burned area contained important habitat components for special status species, the increased period of time to achieve restoration would represent a loss of effective habitat for that period of time.

Development of a plan to manage wildland fires for resource benefit would allow planning to protect critical resources for special status species.

Lands and Realty. Under lands and realty actions, this alternative would recommend the withdrawal of the entire Planning Area from the public land laws, including the mining laws. All public lands would be retained and public holdings would be increased. These actions could potentially help to meet the management goals and objectives for special status species if they result in the acquisition of land important to all or part of the life history of special status species. Habitat for special status wildlife species would be considered to have high public resource values and would be a priority for acquisition. The following management actions could protect habitat critical to special status species: 1) acquire the rights necessary to close roads that provide public access to lands containing sensitive resource values; 2) control and minimize access to areas containing sensitive resources; and 3) provide for land tenure actions that do not facilitate public access to lands containing sensitive resource values. The entire Planning Area would be considered a ROW and realty use authorization exclusion area.

No new effects from communications development to bighorn sheep and other resources at Buckskin Mountain would occur. When the existing facilities become obsolete and would be removed, there would be less human disturbance to the sheep in that area from communications operation and maintenance activity.

Removal or consolidation of parallel overhead powerlines in crucial sage-grouse habitat may result in less predation from perching raptors.

Transportation and Roads. Only roads required by law would be constructed, and road maintenance would not occur. Road closures would be the most extensive under this alternative. Disturbance effects to special status species from transportation and roads would be minimal under this alternative.

Off-Highway Vehicles. Areas designated as closed would be maximized and would include the Alvord Desert playa, Borax Lake, Mickey Hot Springs, Catlow Valley, and all WSAs. All other areas would be designated as limited to designated roads and trails, with a minimum number of roads and trails identified. Organized OHV or mechanized vehicle events would be prohibited. Potential effects from OHVs on special status wildlife species and their habitat would be the same as those described for Alternative A. Designation of the Steens Mountain Wilderness, all WSAs, and WSA cherrystem roads as closed to OHV and mechanized vehicle use would eliminate potential disturbances to wintering bighorn sheep to the extent that their range overlaps with the closed designation. The closed designation would also eliminate any disturbances to special status wildlife species and their habitat. Road closures would reduce access and thereby reduce human disturbance to special status wildlife species.

Recreation. Closing some undeveloped recreation sites would improve suitable habitat conditions for special status animal species. Special status animal species would generally not be disturbed by recreational use.

4.7.2.3.4 Alternative C

Direct Effects

The effects of bat gate installation would be the same as those described for Alternative B.

Big sagebrush habitat would be managed for the benefit of special status species to meet the DRC in all big sagebrush habitats throughout the Planning Area. Management would be in accordance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. The effects of this management action would be similar to those described for Alternative A.

The management actions for the reintroduction of Columbia sharp-tailed grouse, mountain quail, and other species would be the same as for Alternative A. The effects of these management actions would be similar to those described for Alternative A.

Transplants, reintroductions, and natural expansion of bighorn sheep would be allowed. The effects would be similar to those described for Alternative A. No habitat improvements in historic bighorn range would be conducted. This could reduce the likelihood of establishing viable herds in these transplant and reintroduction locations as well as the areas bighorn sheep naturally expand. Bighorn population numbers would be allowed to exceed management objectives. The ODFW would be authorized to trap bighorn sheep if they determine that excess animals would be available for removal. This would protect the range from resource overuse, protect herd health and viability, and enable the ODFW to engage in wildlife exchanges with other states. The effects of water development would be the same as those described in Alternative A.

Indirect Effects

Soils and Biological Crusts. The management goals and objectives of the Soils and Biological Soil Crusts resource area would be directed toward promoting soil stability and reducing erosion. Soil conditions could improve more quickly in the short term.

Riparian and Wetlands. This alternative would be similar to Alternative B. However, both active and passive measures would be used to manage livestock use in riparian/wetland areas. The rate of progress toward achieving an advanced ecological status for restoration of riparian/wetland areas and upland vegetation would be expected to increase because both active and passive measures would be used. Upland vegetation communities would be manipulated and managed to reduce fire intensity and frequency. Active restoration could include both native and/or desirable nonnative vegetation. Restoration sites would be managed to progress toward native vegetation within the RMP timeframe of 20 to 50 years. Under these management actions, suitable habitat conditions for special status species would be maintained or increased.

Similar to Alternative A, the establishment of sources of localized tree and shrub source material for restoration would assist in restoring riparian vegetation. Restoration actions would be expanded beyond the scope of Alternative B to isolated stands of riparian vegetation, thereby improving habitat conditions for special status wildlife species. However, the habitat value of these isolated sites could be reduced if livestock or wild horses damaged the vegetation during restoration.

Roads within and providing access to riparian areas would be managed as in Alternative B, and the effects would be similar to those described under Alternative B. Beaver populations would be managed as in Alternative A. In addition, reintroduction and expansion of beaver into suitable habitat would be allowed. This would increase the likelihood of additional suitable habitat developing for special status amphibians and bats.

Woodlands. Although the management actions for woodlands would be different under Alternative C than for Alternative A, the potential disturbance effects on special status species would be the same. The effects on special status species from mechanical removal of up to 90 percent of the post-settlement western juniper trees in old growth stands would be similar to Alternative A. The effects on special status species of allowing fires to burn in old growth western juniper stands if no threat to life or significant resource values exists, would be similar to the effects described in Alternative B. To the extent that fires might be suppressed, restoration of fire to its historic role in the ecosystem would be delayed. Since no special status species require this habitat type for successful reproduction, no effects to their viability would be expected from the delay.

The effects of the following management actions would be the same as those described for Alternative B: 1) potential effects of mechanical juniper removal from quaking aspen and mountain mahogany stands, and the restoration of quaking aspen stands through burning; 2) mechanical removal of younger western juniper from riparian and sagebrush habitats; and 3) wildland fire, and natural and human ignited fires would be allowed to reduce the influence of western juniper on sagebrush and riparian habitat.

Rangelands. The emphasis would be on natural values and other resource objectives, such as reestablishment of native species. Actions to diversify the structure and composition of selected nonnative seedings would increase the quality and quantity of habitat available for sagebrush-dependent species.

Interseeding would be used on approximately 20,000 acres of nonnative seedings throughout the Planning Area to establish native plants where vegetative diversity would be low. The emphasis would be on reestablishing native species, but other desirable nonnative species could be used in the seeding mix where appropriate. This would increase habitat quality and quantity across a large expanse of the project area and could contribute to increases in populations of sagebrush dependent species. Livestock grazing could be used to suppress plant competition and allow sagebrush establishment. To maximize the likelihood of establishing suitable habitat for special status wildlife species, coordination with the ODFW, USFWS, and permittees would occur. Seedings on the north and west side of Steens Mountain would be emphasized. Habitat conditions in these locations would improve for sage-grouse.

The effects of the following management actions would be the same as those described for Alternative A: 1) brush beating of sagebrush in a mosaic pattern would be allowed on 50 percent of seeded areas with high brush cover; 2) natural-ignited wildland fire would be allowed to create a mosaic of multiple successional stages; 3) reduce the dominance of woody plants, and release suppressed desirable plants.

Plant communities that do not meet the DRC due to dominance by annual or invasive species, or invasive juniper would be rehabilitated using only native species. The emphasis on native plant species could increase both the quality and quantity of suitable habitat for sagebrush-dependent species.

Big sagebrush, quaking aspen, and western juniper communities would be managed for the benefit of all wildlife and to meet the DRC in all habitats. Big sagebrush habitat would be managed for the benefit of game and nongame species and would be managed to meet the DRC in all big sagebrush habitats throughout the Planning Area. These management actions would increase the quality and quantity of suitable habitat for sagebrush-dependent species.

Noxious Weeds. The effects of management actions for noxious weeds would be similar to those described for Alternative A.

Fish and Wildlife. The effects of emphasis on managing habitat for self-sustaining native species would be the same as for Alternative B.

Throughout the Planning Area, approximately 20,000 acres of nonnative seedings (discussed above) and all of low species diversity native vegetation in deer winter range would be interseeded to establish native plant species. Other desirable nonnative plant species may be used on a limited basis. Livestock grazing would be used to suppress competition and allow sagebrush to become established. Coordination with the ODFW, USFWS, and permittees would occur to set livestock grazing prescriptions on a site-specific basis in areas to be reseeded. This would increase habitat quality and quantity across a large expanse of the project area and could contribute to increases in populations of sagebrush-dependent species.

Opportunities would be identified and implemented to improve and/or restore fish and wildlife habitat through wildland fire, other vegetation manipulations, limited fence removal, water developments, and other measures. The additional projects could include both active and passive methods and would provide more opportunities to improve habitat than using mainly passive methods.

Energy and Minerals. Big game winter range, areas containing special status species and their habitats, and areas within 0.6 mile of identified sage-grouse leks would be recommended for withdrawal from various types of energy and mineral development. In addition, numerous other types of special designations would be withdrawn. The potential effects of energy and minerals on special status species as described in Alternative A, would be reduced to the extent that these additional withdrawn areas would be occupied by special status species or contain suitable habitat for such species.

Wild Horses and Burros. The potential effects of management actions associated with wild horses would be the same as those described for Alternative B.

Grazing Management. Protection of natural values would be emphasized in the AMU while providing for minimal sustainable livestock grazing that meets allotment management objectives. Grazing in the CMPA would be allowed consistent with Steens Act, but emphasis would be on natural resource objectives. These management actions would increase the likelihood that suitable habitat would be maintained or increased for sagebrush-dependent special status species. Other management actions to meet natural resource objectives, including discontinued use in vacant allotments that have resource conflicts, could also increase the availability of suitable habitat for special status species.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. To the extent that these areas coincide with habitat used by special status species, suitable habitat would be maintained. However, over the long term, such activities could possibly contribute to the occurrence of larger, hotter fires, and a loss of suitable habitat, as well as increased fire cycle and weed invasion. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions if appropriate for resource benefits. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The effects of this management action would be similar to those described under Alternative B. The effects of other management actions would be similar to those described for Alternatives A and B.

Lands and Realty. All lands within 0.6 mile of sage-grouse leks, deer and elk winter range, and bighorn sheep habitat, would be designated as ROW and realty use authorization exclusion and avoidance areas. The feasibility of consolidating existing parallel utility ROW facilities through crucial wildlife habitat would be evaluated. Where deemed feasible, consolidation of facilities would be implemented for critical areas. Federal agency requests for new withdrawals would be recommended for approval only if they would limit commodity production and protect natural values.

No new effects to bighorn sheep and other resources from communications development would occur at Buckskin Mountain. When the existing facilities become obsolete and would be removed there would be less human disturbance to the sheep in that area from communications operation and maintenance activity.

Consolidation of parallel overhead powerlines in crucial sage-grouse habitat, where feasible, may result in less predation from perching raptors.

These management actions, along with others for Alternative C, would minimize disturbance effects to wildlife.

Transportation and Roads. Transportation systems would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. To the extent that this results in road closures, seasonal closures, and other limitations, disturbance effects to special status species and their habitat would be minimized and would be similar to Alternative B.

Off-Highway Vehicles. Management for minimal OHV and mechanized vehicle use, including limiting OHV and mechanized vehicle use to designated roads, ways, and trails across the Planning Area, would result in reduced disturbance to wildlife. Seasonal area closures and closing unneeded roads would also reduce disturbance to wildlife. Road closures could reduce access and thereby reduce human disturbance to special status wildlife species.

Recreation. To the extent that recreational use would be focused away from critical habitat of special status species (e.g., nests, lek sites), disturbance to special status animal species would be reduced. Some disturbance and displacement would be expected, but concentrated recreation use could result in the loss of special status animal species habitat.

To the extent that unlimited dispersed recreation increases and consistently overlaps with special status species habitat, special status species could temporarily alter their use patterns or be permanently displaced. The effects of specific projects on special status species and their habitat would be analyzed on a case-by-case basis.

4.7.2.3.5 Alternative D

Direct Effects

Management would be similar to Alternatives B and C except for the following: Bat gates would be installed at the entrances of abandoned mines to protect known roost sites from disturbance by recreationists. Specific crucial sites, such as mines known to contain large numbers of hibernating individuals or high-density maternity roosts, would be considered for withdrawal from mineral entry.

Big sagebrush habitat would be managed for the benefit of special status species to meet the DRC in all big sagebrush habitats in most of the Planning Area. Habitat management would be coordinated across agency boundaries, which would increase the likelihood of successfully accomplishing goals and objectives relating to sage-grouse and other special status species.

Management would be in accordance with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines. The effects of this management action would be similar to Alternatives A.

The management actions for the reintroduction of Columbia sharp-tailed grouse, mountain quail, and other species would be the same as for Alternative A. The effects of these management actions are similar to those described for Alternative A.

The management actions associated with transplants, reintroductions, and natural expansion of bighorn sheep populations; habitat improvements in historic range; and trapping by the ODFW when bighorn numbers exceed management objectives, would be the same as for Alternative A. The effects of these management actions would be similar to those described for Alternative A.

The management action to identify up to ten sites for construction of low visual impact, natural appearing water sources or wildlife guzzlers in historic bighorn sheep habitat would be the same as for Alternative A. The effects of this management action would be similar to those described for Alternative A.

Indirect Effects

Soils and Biological Crusts. The management goals and objectives of the Soils and Biological Soil Crusts resource area would be directed toward promoting soil stability and reducing erosion. The emphasis on restoration and rehabilitation of soils and other natural resource values would produce similar effects as Alternative C.

Riparian and Wetlands. The ecological status objectives would be dependent on meeting multiple resource objectives. Similar to Alternative C, management of existing grazing systems and recreation would be directed toward improvements to maintain PFC and promote an advanced ecological status. The rate of progress toward achieving an advanced ecological status for restoration of riparian and upland vegetation would be expected to increase because both active and passive measures would be used. Suitable habitat conditions for special status species would develop sooner under these management actions.

The effects of the following management actions would be similar to the effects described for Alternatives A and B, respectively: the establishment of sources of localized tree and shrub source material for restoration, and expansion of restoration actions to include isolated stands of riparian vegetation. The effects of roads within or providing access to riparian areas would be similar to those described in Alternative B. Beaver populations would be managed as in Alternative C and the effects would be the same as those described in Alternative C.

Woodlands. Although the management actions for woodlands would be different under Alternative D than under Alternatives A, B, and C, the effects on special status species would be the same as those described under those alternatives. The management action to develop markets for the by-products of juniper removal could result in additional disturbances to special status species in certain locations, and would be analyzed on a case-by-case basis.

Rangelands. Grazing systems and range improvements designed to improve ecological conditions would have similar effects as those described in Alternative A. Because the emphasis would be on balanced cooperative management practices, the ecological status of native plant communities would be maintained or improved. Actions to diversify the structure and composition of selected nonnative seedings, consistent with resource objectives, would be implemented. These actions would also maintain or improve suitable habitat for special status species.

Desirable nonnative seedings would be managed to maintain vegetation composition and meet S&Gs. To the extent that nonnative seedings would be maintained in place of sagebrush habitat, a loss of habitat for sagebrush-dependent species would occur.

The following management actions could reduce suitable habitat for special status species in the short term, but in the long term, they would increase the amount and diversity of suitable habitat for special status species: 1) Interseeding approximately 10,000 acres or more of nonnative seedings to establish native plants throughout the Planning Area where vegetative diversity would be low. The emphasis would be on reestablishing native species, but other desirable nonnative species could be used in the seeding mix where appropriate; 2) Brush beating of sagebrush in a mosaic pattern on 50 percent of seeded areas with high brush cover; 3) Plant communities that do not meet the DRC due to dominance by annual or invasive species or invasive juniper would be rehabilitated. Native and nonnative species would be seeded where appropriate; and 4) Prescribed fire and wildland fire would be used to create a mosaic of multiple successional stages, reduce the dominance of woody vegetation, and release suppressed desirable plants. The potential effects of these actions would be the same as those previously described for Alternatives A, B, and C.

Noxious Weeds. Treatment for noxious weeds under this alternative would be similar to Alternative A, utilizing integrated management. Emphasis on protection and restoration of natural values would provide accelerated recovery rates and improved habitat conditions.

Fish and Wildlife. Throughout the Planning Areas, approximately 10,000 acres or more of nonnative seedings (discussed above) and most of the native vegetation with low vegetative diversity in deer winter range would be interseeded to establish native plant species. Nonnative plant species could be used where appropriate. Livestock grazing would be used to suppress competition and allow sagebrush to become established. To the extent that sagebrush would be successfully reestablished, suitable habitat for sagebrush-dependent special status species would improve.

The effects of improvements and/or restoration of fish and wildlife habitat through wildland fire, other vegetation manipulations, water developments, and other measures would be the same as those identified in Alternative A. Fences could also impede the movement of special status species and potentially cause mortality due to entanglement. Continued compliance with BLM fencing requirements would reduce these potential effects.

Energy and Minerals. Many special designations would be withdrawn from locatable mineral development, including RCAs and ACECs. Seasonal and/or special stipulations would be implemented for big game winter range, RCAs, areas containing federally listed species and their designated critical habitat, and within 0.6 mile of identified sage-grouse leks. Effects to special status species would be reduced with respect to Alternative A, but would increase with respect to Alternatives B and C.

Wild Horses and Burros. The potential effects of management actions associated with wild horses would be the same as those described for Alternative B.

Grazing Management. Under this alternative, the development of grazing management prescriptions both in the AMU and in the CMPA would be designed to meet natural resource objectives. The effects of this action on special status species would be to maintain habitat with some improvements over the long term similar to those described for Alternative A.

Wildland Fire Management. Management actions and their effects on special status species would be similar to Alternative C. However, a mixture of native and introduced species would be used to enhance economic and natural resource values for the rehabilitation of burned areas and areas altered by fire suppression. This could allow greater options for resource managers and the possibility of more rapid rehabilitation of sites. Consequently, the development of suitable habitat for special status species could occur more quickly compared to using only native species.

Lands and Realty. The acquisition of land with high public resource values would be emphasized, potentially providing increased habitat for special status species, WSAs and ACECs would be managed as ROW and realty use avoidance areas, thereby reducing potential special species effects due to ROW construction and maintenance activities with respect to Alternative A, but reducing benefits with respect to Alternatives B and C. Access control in sensitive resource areas would not be emphasized as in Alternatives B and C, potentially increasing effects to special status species. All large-scale facilities would be encouraged to locate in the designated corridors. Failure to do so would increase disturbances to wildlife and contribute to habitat loss. New withdrawals and modifications would be considered on a case-by-case basis.

Existing effects to bighorn sheep and other resources from communications development at Buckskin Mountain would continue. Additional disturbance may occur to the sheep from human activity associated with added communications development. However, implementation of a communications site plan would limit surface and other environmental disturbance, facilitate efficient timely communications development, and reduce conflict among users. Effects to sheep by communications development would also be limited by low demand for facilities, remoteness, and small population in the service area.

Consolidation of parallel overhead powerlines in critical sage-grouse habitat, where feasible, may result in less predation from perching raptors.

Potential disturbance effects to wildlife would be similar to those under Alternative A.

Transportation and Roads. For existing transportation and roads management, this alternative would result in management that meets resource goals and objectives, but that strikes a balance between cultural, economic, ecological, and social values. The effects for this alternative on special status species would likely be increased from Alternatives B and C, and decreased from Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use would be managed in accordance with Alternative D OHV designations. The BLM would seek cooperative agreements with OHV and mechanized vehicle clubs and other participants. Potential disturbance effects to special status species would be analyzed on a case-by-case.

Recreation. Tourism opportunities and recreation developments would be allowed only if consistent with other resource objectives, thereby minimizing disturbance to special status animal species. Development of new recreation sites would be consistent with the protection of natural values, which would also help to minimize disturbance to special status animal species.

4.7.2.3.6 Alternative E

Direct Effects

The effects of bat gate installation would be the same as those described for Alternative A.

Big sagebrush would be reestablished where economically important special status species would be present. The emphasis on game species, such as mule deer, could indirectly create habitat conditions suitable for other special status species. Management would occur to the extent practicable with the Migratory Bird Executive Order and the Greater sage-grouse and Sagebrush Steppe Ecosystem Management Guidelines.

Whether habitat improvements, if any, would be needed in order to create suitable habitat for reintroduced Columbia sharp-tailed grouse, mountain quail, and other species would be determined. Implementation of any necessary habitat improvements prior to reintroductions would increase the likelihood of establishing successful, self-sustaining populations of these special status species. Introductions would not occur in areas where economic effects would be demonstrated. This could potentially limit the number of suitable locations for reintroductions.

The management actions associated with bighorn sheep transplants, reintroductions, and natural expansion of populations; habitat improvements in historic range; and trapping by the ODFW, when they determine that excess animals were available, would be the same as for Alternative A. The effects of these management actions would be similar to those described for Alternative A. The management action to identify up to ten sites for construction of low visual impact, natural appearing water sources or wildlife guzzlers in historic bighorn sheep habitat would be the same as for Alternative A The effects of this management action would be similar to those described for Alternative A.

Indirect Effects

Soils and Biological Soil Crusts. The management goals and objectives of the Soils and Biological Soil Crusts resource area would be directed toward promoting soil stability and reducing erosion. These goals and objectives should maintain and possibly improve special status species habitats both in the long and short term.

Riparian and Wetlands. Management of existing grazing systems would be directed toward providing maximum use while maintaining or progressing toward PFC. Active restoration of both upland and riparian communities would be pursued to provide sustainable livestock forage, and would not emphasize ecological status. Active restoration of both upland and riparian communities would be pursued to provide sustainable livestock forage, soil stability, and aesthetics, and would not emphasize ecological status. These management actions could reduce habitat suitability for special status species.

Management of roads within and providing access to riparian areas would be similar to Alternative A, with additional emphasis on the development of additional roads to promote commodity production and public uses. Potential effects to special status species due to disturbance would be more likely to occur than under any of the other alternatives. If new roads were located in meadow habitat, they could cause loss of suitable foraging habitat for a variety of special status species. Frequent use of such roads could cause indirect loss of the remaining habitat.

The effects of management actions for beaver would be the same as those described under Alternative A.

Woodlands. The effects of management actions would be similar to those described for all other alternatives. The management action to develop markets for by-products of juniper removal could result in additional disturbances to special status species in certain locations, and would be analyzed on a case-by-case basis.

Rangelands. Production of native, herbaceous and shrubby vegetation for commodity uses within the constraints of other resource management objectives would be emphasized. Restoration of existing nonnative seedings in poor or fair condition would maintain or improve habitat conditions for special status species to the extent that the restored areas would be available for their use. The use of interseeding to establish native and other desirable nonnative plant species on approximately 5,000 acres of low diversity, nonnative seedings would increase habitat suitability for special status species. The emphasis on commodity production would mean rangeland treatments would be less likely to develop habitat conditions suitable for sagebrush-dependent special status species.

Areas dominated by cheatgrass or an overstory of sagebrush with a few herbaceous plants would be rehabilitated with species that would provide optimal forage and vegetative cover. This could increase suitable habitat conditions for

sagebrush-dependent special status species proportional to the amount of rehabilitation that occurs. Plant communities dominated by undesirable invasive species or invasive juniper would be rehabilitated with plant species that would provide optimal forage and vegetative cover for livestock. This could also improve habitat conditions for sagebrush-dependent special status species to the extent that plant species used for rehabilitation provide suitable nesting and foraging habitat. Other management actions, including reduction of woody vegetation and management of big sagebrush habitat, would also increase habitat availability. Reductions in fuel loading (i.e., reduction of woody vegetation) would decrease the likelihood of catastrophic fire, which would reduce the potential loss of large portions of special species habitat.

Brush beating or disking a maximum of 75 percent of nonnative seedings with high shrub cover would be conducted to release grass species and preserve maximum production. This could increase the potential effects to special status wildlife species and their habitat from those described in Alternative C, but similar methods to minimize any effects could be implemented. Effects to sage-grouse would increase through decreased cover, as this amount exceeds that set forth in the Greater sage-grouse and Sagebrush Steppe Management Guidelines.

Plant communities that do not meet the DRC due to dominance by annual or invasive species or invasive juniper would be rehabilitated. Seed species would be those that provide for optimal forage and/or cover production. To the extent that such species do not provide suitable habitat for special status species, habitat suitability would decline.

Prescribed fire and wildland fire would be used to create a mosaic of multiple successional stages, reduce the dominance of woody vegetation, and release suppressed desirable plants. This would have the same effects as those described in Alternative B. Similar to Alternative A, mechanical removal of woody vegetation would be used to create structural mosaics, but under this alternative it would be used only on selected sites, thereby reducing any potential effects to special status species.

Big sagebrush habitat would be managed for the benefit of game species where present and would be managed to meet the DRC in all big sagebrush habitats throughout the Planning Area. This alternative may not meet the habitat conditions required by sagebrush-dependent special status species. Big sagebrush, quaking aspen, and western juniper habitat types would be managed where economically important wildlife would be present. Big sagebrush would be reestablished where economically important game species would be present. To the extent that these areas would be used by special status species, habitat conditions would be maintained or improved.

Noxious Weeds. Treatment for noxious weeds under this alternative would be similar to Alternative A, using integrated management. Priority would be given to high quality natural resource areas, which may provide slightly higher water resource benefits than in Alternative A, where priority would be to roads, ROWs, and recreation sites.

Fish and Wildlife. Throughout the Planning Area, approximately 5,000 acres nonnative of seedings (discussed above) and some native vegetation with low vegetative diversity in deer winter range would be interseeded to establish native and other desirable nonnative plant species. Livestock grazing would be used to suppress competition and allow sagebrush to become established. The potential effects of this management action would be similar to those described for Alternative D, but would occur on fewer acres. This management action could contribute to an increase in suitable habitat for sagebrush-dependent special status species. The habitat availability could increase to the extent that the reseeding occurs near habitat occupied by special status species or that it creates conditions that could eventually be used by special status species.

Opportunities would be identified and implemented to improve and/or restore fish and wildlife habitat through wildland fire, other vegetation manipulations, limited fence removal, water developments, and other measures. However, these improvements would also benefit livestock, which might limit their efficacy in terms of improving habitat for special status species.

Energy and Minerals. Energy and mineral development would be based on the current management framework. Only areas closed by Congressional action would be excluded from development. No special designations would be excluded from leasing or entry. Certain stipulations could be applied by an ID team prior to leasing. Potential effects of such activities would be the same as those described for Alternative A. Due to the emphasis on commodity production and fewer closed locations, the likelihood of such effects occurring would be much greater under this alternative than all other alternatives.

Wild Horses and Burros. Under this alternative, the South Steens HMA would be expanded to include some areas such as Alvord Peak, where wild horses were removed in the late 1970s. One reason for this removal was the conflict of managing wild horses in bighorn sheep habitat. Returning wild horses to areas inhabited by bighorns could reduce the

habitat available for bighorn sheep. Wild horses could also affect riparian resources and sagebrush steppe habitat that would be used by several special status species migratory birds. If Alternative E's emphasis on livestock grazing authorization resulted in increased use in HMAs, then long-term trends toward a decline in rangeland condition could occur if monitoring would not rigorously adhered to, and any needed adjustments in AMLs would not be implemented. Such a situation could degrade suitable habitat conditions for special status species.

Grazing Management. Livestock grazing opportunities would be maximized under this alternative. The increased emphasis on livestock grazing would more likely cause some of the potential effects described in Alternatives A and B. Although S&Gs would be used to guide management, this alternative does not provide for the emphasis on other resource objectives in allotment planning as do other alternatives. Depending on where the increased use occurred, some decline in habitat suitability for special status species could occur if the increased use resulted in a decline in rangeland conditions.

Wildland Fire Management. All wildland fires would be suppressed using appropriate management actions. The effects of this management action would be the same as those described under Alternative A. Rehabilitation of all burned areas with a mixture of native and introduced plant species would be used to provide maximum economic production. Following rehabilitation, an increase in the extent of introduced plants compared to pre-fire conditions could result in a decline in suitable habitat for special status species. If native plants would be prevented from reestablishment within the rehabilitated areas, long-term loss of habitat suitable for special status species could occur. A plan to manage fires for resource and economic benefit would be developed. Although economic benefits would be prioritized under this alternative, other resources, such as big game winter habitat would be likely to receive a similar high priority. Suitable habitat for special status species would be provided to the degree that these species occur in the prioritized habitat types.

Lands and Realty. Acquisition of land with high commodity values would be emphasized over lands with high natural resource values. In the long term, disturbance effects to wildlife could increase if commodity uses increase. As in Alternative D, some special designations would be managed as ROW and realty use avoidance areas, reducing potential disturbances to wildlife from ROW construction and maintenance activities. Similar to alternative D, access control in sensitive resource areas would not be emphasized, potentially increasing disturbances to special status species. The feasibility of consolidating existing parallel utility ROW facilities through crucial wildlife habitat would be evaluated, but no action would be taken to consolidate the facilities. Construction of new powerline projects located near sage-grouse lek sites could alter habitat use, cause abandonment of lek sites, and increase predation rates due to the development of perch sites for raptors. No new protective withdrawals would be considered. This action, along with other management actions under this alternative, would increase the disturbance effects to special status species.

Existing effects to bighorn sheep and other resources from communications development at Buckskin Mountain would continue. Additional disturbance may occur to the sheep from human activity associated with added communications development and may be exacerbated by disorganized, inefficient development due to the absence of a communications site management plan. However, these effects to sheep by communications development would be limited by low demand for facilities, remoteness, and small population in the service area.

The absence of action to consolidate existing parallel overhead powerlines may result in continued predation from perching raptors on sage-grouse, visual intrusions, and other environmental disturbance.

Transportation and Roads. Transportation and roads would be managed for the benefit of commodity production. Road closures would be the least extensive under this alternative, and maintenance requirements would be higher. New road development would be encouraged. Under this alternative, the operation and maintenance of roads would be more likely to cause disturbance effects to special status species than would occur under the other alternatives. The extent of the disturbance would vary depending on the proximity of roads to critical habitat needed by special status species.

Off-Highway Vehicles. Management actions would maximize OHV and mechanized vehicle use with respect to all other alternatives. The potential for disturbance to special status animal species and their habitat from OHV and mechanized vehicle use would be highest under this alternative.

Recreation. Increased recreation opportunities and use would result in greater disturbances to special status animal species. To the extent that new recreational developments or dispersed recreation occurs in or near areas regularly used

by special status animal species, these species could be permanently displaced from important habitat. Overall, increased recreation use would result in greater effects to special status animal species.

4.7.2.4 Summary of Effects

Under Alternative A, habitat for sagebrush-dependent species would continue to slowly decline over time. Identification, conservation, and aggressive fire suppression activities within remaining blocks of sagebrush habitat where ecological integrity would still be high would offset this decline. Some restoration of degraded sagebrush habitat would occur, but this would not be a priority area of focus for restoration. Maintaining nonnative seedings to promote forage production would continue the declining trend in sagebrush-dependent species. The management goals would be met over the life of the Plan; however, no large increase in sagebrush-dependent species or their habitat would be expected to occur. The potential disturbance effects due to energy and minerals and recreation would be less under Alternative E, comparable to Alternative C, but greater than Alternatives B and C.

Special status species habitat would continue to improve, although recovery rates and extent of recovery would be reduced to allow for commodity uses, including livestock, transportation, and recreation. Management would continue on a case-by-case basis on a site-specific level with less consideration for watershed-scale effects.

Under Alternative B, reliance on natural processes and passive management actions could result in wildland fires that destroy a large proportion of sagebrush habitats in the Planning Area. Less extensive restoration on lands burned by wildfire could result in decreased habitat availability for sagebrush-dependent species. The management goal for this objective would not be met under this alternative, and sagebrush-dependent species would decline at a greater rate than under Alternative A. The potential disturbance effects due to energy and minerals and recreation would be less under Alternative B compared to all other alternatives.

Under Alternative C, remaining blocks of sagebrush where ecological integrity would still be high would be closely monitored and conserved. Restoration priorities would be given to those areas of sagebrush that would be in moderate to low ecological condition. Active restoration would move areas in moderate and poor condition toward higher ecological integrity and offset the declining trend. Close monitoring of grazing activities to allow enough residual grasses to remain onsite would offset any declining trends. Sagebrush-dependent species would be expected to increase over the life of the Plan at a moderate rate. Alternative C would meet the management goal faster than all other alternatives. The potential disturbance effects due to energy and minerals and recreation would be less than Alternatives A, D, and E. Recovery rates would be faster than what would occur under all other alternatives, which would result in better special status wildlife species habitat conditions. Consideration of watershed-scale effects would result in more stable conditions. Emphasis on protection and restoration of natural values would achieve the management goal for special status species.

Under Alternative D, effects would be similar to Alternative C. While restoration of sagebrush would still be a priority, it would be achieved at a slower rate compared to Alternative C. Recovery rates for other habitat types would require more time and would be slower than Alternative C. However, the management goal would be met under this alternative. The potential disturbance effects due to energy and minerals and recreation would be less than Alternatives A and E, comparable to Alternative C, but greater than Alternative B.

Under Alternative E, effects would be similar to Alternative A. However, increased emphasis on commodity production would reduce benefits to sagebrush habitat and sagebrush dependent species. Restoration would be focused in commodity production areas. Commodity production areas would receive fire suppression priorities over other resources. Sagebrush-dependent species would continue to decline over the life of the plan. The management goal for this objective would not be met within the life of the plan. The potential disturbance effects due to energy and minerals and recreation would be greatest under Alternative B compared to all other alternatives.

4.7.2.5 Cumulative Effects

Historically, cumulative effects to sagebrush habitat from overgrazing and fire suppression have contributed to a decline in sagebrush habitat conditions for special status species. In addition, the invasion of exotic species such as cheatgrass, has led to a reduction in understory grasses and forbs and has left much of the remaining big sagebrush habitat in moderate to low ecological condition. Without major investments in restoration, these cumulative effects would continue to keep most big sagebrush habitats in poor condition. Alternatives that support active management and restoration would increase habitat for sagebrush-dependent species.

4.7.3 Fish

4.7.3.1 Goals and Objectives

Goal 1 - Maintain, restore, or improve special status plant populations and animal habitats; manage public lands to conserve or contribute to the recovery of threatened or endangered species; and prevent future ESA listings.

Objective 1. Conserve special status animal species and the ecosystems on which they depend.

4.7.3.2 Assumptions

Pursuant to the ESA, the BLM would continue to consult with the USFWS on any actions that may affect federally protected species or designated critical habitat. Interagency consultation would promote management actions that would not jeopardize the continue existence of federally threatened or endangered species, and that would minimize or avoid adverse effects of management actions on these species.

Conservation of special status fish species on public lands would be associated with aquatic habitat. Maintenance, restoration, or improvement of habitat would primarily be addressed through management of water and riparian vegetation resources. Salmonid and resident fish habitat would be a designated beneficial use in the Planning Area and would be subject to water quality criteria established by the state. WQRPs would be developed and implemented to restore water quality specific elements of fish habitat, such as water temperature.

As a result of the Steens Act, the public lands within Borax Lake chub designated critical habitat have been withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal. This action eliminated the threat of geothermal energy development on public lands surrounding Borax Lake, a primary issue that prompted listing of the Borax Lake chub as endangered and designated critical habitat pursuant to the ESA.

The majority of public land stream miles that provide habitat for redband trout, Catlow tui chub, and Malheur mottled sculpin would be within the Steens Mountain Wilderness. Many of these streams would be also designated segments of the WSR system that recognizes fish habitat as an ORV and regulates management to protect and enhance fish habitat.

The Lahontan cutthroat trout would be listed as threatened under the ESA. The development of WQRPs for the streams occupied by this species would identify activities in these watersheds to maintain or restore water quality that supports Lahontan cutthroat trout habitat.

Analysis of Alternatives

4.7.3.2.1 Effects Common to All Alternatives

Direct Effects

Fish and wildlife habitat monitoring would be coordinated with other responsible agencies and cooperators. Monitoring would help to promote management of special status species habitat and populations for conservation and/or recovery by providing information for adaptive management decisions.

Indirect Effects

Off-Highway Vehicles. For OHV and mechanized vehicle use in the Borax Lake ACEC/area, closing or limiting to existing or designated roads and ways the Borax Lake ACEC/area would protect special status species (Borax chub) habitat.

4.7.3.2.2 Alternative A

Direct Effects

Special status species habitat would be managed for conservation and/or recovery. Where special status species habitat occurs in wilderness, WSRs, ACECs, or would be covered by biological opinions of the USFWS, recovery plans, or conservation agreements, additional management actions may not be required or may be minimal. For areas not included in the above description, additional management actions may be developed and implemented through activity plans, such as modification of grazing or recreation management, or restrictions on vehicle access. This management action would promote viable populations of special status fish, and may preclude future listings.

Indirect Effects

Potential indirect effects to special status aquatic species resulting from management actions in other resources would be described for this alternative in the water resources, and fish and aquatic habitat sections of this document. These effects include fine sediment delivered to streams, which could result from the following: 1) decreases in riparian vegetation density and coverage, or from soil compaction; 2) increases in stream temperature due to decreased riparian vegetation; or 3) reduction in physical habitat or habitat complexity due to direct disturbance and resulting streambank instability. However, under this alternative, the management action described above to conserve and/or recover special status species and habitat would promote management actions to conserve or restore habitat.

4.7.3.2.3 Alternative B

Direct Effects

Except for critical habitat, natural processes would be allowed to define special status species habitat. Where habitat for special status species would be degraded, this management may not promote conservation and/or recovery. Erosion may continue, and noxious weeds may spread, both of which lead to increased sedimentation and reduce available habitat. In other areas, natural processes should provide for maintenance or continued improvement of habitat conditions, although improvements may be slower than in alternatives where active restoration occurs.

The Borax Lake chub would likely be eligible for down-listing to "threatened" or delisted from the ESA as a result of permanent protection from threats identified in the Recovery Plan for the Borax Lake Chub.

Indirect Effects

As described in Alternative A, potential indirect effects to special status aquatic species resulting from management actions in other resources for this alternative would be described in the water resources and fish and aquatic habitat sections of this document. Although the potential for indirect effects to special status species does exist, the effects would be limited in scope and nature, resulting from exclusion of commodity production in the AMU and the emphasis on maximizing natural processes within the CMPA.

4.7.3.2.4 Alternative C

Direct Effects

As in Alternative A, special status species habitat would be managed for conservation and/or recovery, with the same effects.

As in Alternative B, permanent protection of designated critical habitat for the Borax Lake chub would be pursued through purchase or conservation easements, with the same effects.

Indirect Effects

As described in Alternative A, potential indirect effects to special status aquatic species resulting from management actions in other resources for this alternative would be described in the water resources and fish and aquatic habitat sections of this document.

4.7.3.2.5 Alternative D

Direct Effects

As in Alternative A, special status species habitat would be managed for conservation and/or recovery, with the same effects.

Permanent protection of designated critical habitat for the Borax Lake chub would be pursued through purchase or conservation easements, but activities that could affect critical habitat would be managed to avoid or minimize effects. This action would likely promote the protection of the species and designated habitat in the event that TNC wished to dispose of the property.

Indirect Effects

As described in Alternative A, potential indirect effects to special status aquatic species resulting from management actions in other resources for this alternative would be described in the water resources and fish and aquatic habitat sections of this document.

4.7.3.2.6 Alternative E

Direct Effects

Special status species habitat would be managed with an emphasis on game species. For most special status species, this would have the same effects as under Alternative A. For Malheur sculpin, which occur with redband trout throughout their range, management for redband trout would also benefit the sculpin. Alvord chub, however, may occur in habitats that do not contain game fish. In these cases, the emphasis on game species under this alternative may not provide the same level of conservation for these species.

As in Alternative A, current management of designated critical habitat for the Borax Lake chub would continue, with the same effects.

Indirect Effects

As described in Alternative A, potential indirect effects to special status aquatic species resulting from management actions in other resources for this alternative would be described in the water resources and fish and aquatic habitat sections of this document.

The one exception to this would be the addition of the Dry Creek and Big Springs pastures in the Fish Creek-Big Indian Allotment, and the Carlson Creek Allotment, Serrano Point Allotment, and Bone Creek and Miners Field pastures of the Alvord Peak Allotment that would return wild horses to areas where they have not been since the 1970s. This area includes Bone Creek which is habitat for the Alvord chub, a special status species. Returning wild horses to this area could potentially affect chub habitat and population by affecting water quality and riparian resources such as stream temperature, bank stability, vegetative diversity, cover and density. Since fencing at the north end of the Serrano Point Allotment would not be sufficient to stop horse movements, wild horses could potentially reach streams to the north along the east side of Steens Mountain that contain Lahontan cutthroat trout, which are federally listed as Threatened. The same effects as described for Alvord chub habitat could occur if horses reach streams containing Lahontan cutthroat trout.

4.7.3.3 Summary of Effects

Under all alternatives, special status species habitat would be managed to conserve and/or recover these species and their habitat, reducing potential indirect effects. Indirect effects would be further reduced under Alternative B primarily because many management actions with the potential to affect special status species and their habitat (e.g., livestock grazing) would not occur in the AMU. However, active restoration of special status species habitat or populations may not occur under Alternative B, which may restrict the potential to restore or conserve populations and habitat in some areas that would be currently disturbed. Indirect effects would be greatest under Alternative E due to the emphasis on commodity production and reduced emphasis on nongame species. Although Alternative E would emphasize commodity production and public uses, BMPs would be developed and implemented to minimize direct and indirect effects to special status species and their habitat. For example, riparian exclusion may be implemented where timing or intensity of grazing to promote commodity production can be assumed to fail to meet riparian vegetation and/or water quality objectives.

4.7.3.4 Cumulative Effects

The cumulative effects of management actions on special status aquatic species would be reduced under Alternative B, since many management actions having the potential to affect these species (e.g., livestock grazing or energy and mineral development) would be substantially reduced or eliminated. Cumulative effects would also be reduced under Alternative C, which has an overall emphasis of protecting and restoring habitat. Although management actions in other resources that have the potential to affect special status species would occur under Alternatives A and D, the potential for cumulative effects would be reduced through an emphasis on conservation and/or recovery of special status species and habitat. Conceptually, the potential for cumulative effects would be greatest under Alternative E, since many of the management actions emphasized to promote commodity production and public uses could contribute to cumulative effects. However, potential effects would be minimized or mitigated through application of BMPs.

4.7.4 Redband Trout Reserve

4.7.4.1 Goals and Objectives

Goal 1 - Manage the RTR to conserve, protect and enhance the Donner und Blitzen population of redband trout, and provide opportunities for scientific research, environmental education, and fish and wildlife-oriented recreation.

Objective 1. Define the RTR boundary.

Objective 2. Maintain genetic integrity of redband trout in the RTR.

Objective 3. Increase the distribution and abundance of redband trout in the RTR through natural production.

4.7.4.2 Assumptions

The intent of designating the RTR was to emphasize protection of the Donner und Blitzen River and riparian ecosystem, and the redband trout that depend on this system. Under any of the alternatives for designating the limits of the RTR, according to the description provided in the Steens Act, all of the RTR would be within the Steens Mountain Wilderness and/or designated WSR segments, and precluded from livestock grazing. Management requirements of the Steens Mountain Wilderness and WSR designation include "non-degradation" and "protect and enhance ORVs", respectively. The ORVs include fish habitat and riparian vegetation. The interrelated nature of riparian condition to channel stability and complexity, and subsequently aquatic habitat, would facilitate maintaining or restoring fish and aquatic habitat within these areas regardless of resource-specific management actions. Also, most of the streams within the RTR would be currently on the 303(d) list for summer stream temperature. The development of WQRPs may further define site/reach specific management and monitoring objectives.

The ODFW retains jurisdiction over the management of fish populations. Under the ODFW's Native Fish Conservation Policy, the conservation of naturally produced (i.e., non-hatchery) native fish species in the areas to which they are indigenous is the ODFW's principal obligation for fish management. Two objectives of the policy would be to restore and maintain sustainable naturally produced fish species in their natural environments, and to provide recreational, commercial, cultural, and aesthetic benefits of optimum native fish populations to present and future citizens. The Policy further states that hatcheries would be used responsibly to help achieve the goals of this policy, and that the ODFW would manage nonnative fish and hatchery based fisheries to optimize user benefits, consistent with conservation of naturally produced native fish species. The BLM would coordinate with the ODFW on the management of redband trout and other aquatic species and their habitat in the RTR, and formulate recommendations regarding species management in accordance with selected alternatives of this RMP.

Opportunities for scientific research the environmental education would be developed, analyzed, and implemented through consultation with the ODFW, SMAC, and USFWS on a case-by-case basis.

4.7.4.3 Analysis of Alternatives

4.7.4.3.1 Effects Common to All Alternatives

Direct Effects

There would be no direct effects common to all alternatives.

Indirect Effects

There would be no indirect effects common to all alternatives.

4.7.4.3.2 Alternative A

Direct Effects

The boundaries of the RTR would be delineated independent of this RMP through coordination among the BLM, ODFW and SMAC

Riparian and aquatic habitats would be managed to maintain or progress toward PFC, water quality standards, and fish habitat values through existing management. Management for PFC in the context of wilderness and WSR designation would allow for ecological progression of riparian vegetation that would promote increased fish habitat values such as cover, instream complexity, woody debris, and substrate condition. The RTR would be managed in accordance with the Wilderness Act and the WSR Act, as appropriate. This may preclude some restoration activities for fish that require motorized transport, heavy equipment, or specialized materials.

The Page Springs gauging station weir would be removed if scientifically feasible and funds would be available. The existing weir has some effect on the ability of redband trout to migrate upstream and downstream, although the extent of this effect would be unknown. If the weir substantially impedes migration, this alternative may limit redband trout population expansion or abundance, particularly fluvial and adfluvial forms, which migrate for spawning. Also, nonnative fish such as carp and sunfish would be found in the mainstem of the Donner und Blitzen downstream of the weir. These fish likely compete with redband trout for food and physical habitat, and prey upon juvenile redband trout. The weir may limit migration of these fish upstream, although the effect of the weir on migration of nonnative fish would be unknown. If the weir substantially impedes the migration of nonnative fish, competition and predation with redband trout upstream of the weir would be reduced. Therefore, complete removal may increase the opportunity for nonnative fish to migrate into the RTR, and increase the effects of competition and predation on redband trout and other native aquatic species.

Indirect Effects

Wild Horses and Burros. Current AMLs and wild horse forage allocation levels would be maintained in all HMAs. Permanent increases or decreases in AML and forage allocations would not be considered. Concentration of wild horses or burros in riparian areas could result in decreased riparian vegetation density and cover, thereby reducing instream cover and shade. If upland forage or water availability decreased greatly, such as through extensive wildfire or drought, increased utilization and concentration of riparian areas could result in reduction of riparian vegetation density, leading to reduced aquatic cover, shade, and/or streambank stability.

Current water sources would be maintained. If properly sited and maintained, these water sources could reduce wild horse and burro concentration and use in riparian areas, thereby reducing streambank disturbance and increasing riparian vegetation coverage and density. This in turn would increase shade on the stream, cover, and habitat complexity. In some cases, the development of water sources may affect wetland habitat through diversion of water. However, additional water sources would not be developed under this alternative.

Recreation. Increased recreation use could result in increased localized disturbance to riparian and wetland vegetation and increased soil compaction, which would reduce aquatic habitat cover and shade. Increased recreation use could also result in greater fishing pressure, requiring more restrictive angling regulations to conserve redband trout. Intensive management could provide greater protection for resources such as aquatic habitat and fisheries through more immediate identification and resolution of conflicts between recreation and other resources.

River use would be allowed only when the lowest gate on the South Steens Loop would be open. Recreational river use may affect fisheries through disturbance of spawning fish or redds. Also, increased recreation use of the river could result in localized disturbance to riparian vegetation, which would reduce aquatic habitat cover and shade. However, the mandate to protect WSR ORVs should minimize effects to redband trout spawning.

4.7.4.3.3 Alternative B

Direct Effects

Under this alternative, the RTR would consist of public lands on the Donner und Blitzen River and its tributaries upstream of the confluence with Fish Creek to the longitudinal extent of current and future redband trout distribution. The migratory and spawning patterns of redband trout in the Donner und Blitzen system would not be well understood. Fish in the mainstem may spawn in tributaries, or the tributaries may contain populations that would be relatively distinct from the mainstem population. This alternative would include all potential habitat and potential populations, and would maximize conservation and protection for Donner und Blitzen redband trout.

Riparian and aquatic habitats would be managed for an advanced ecological status, which may promote increased fish habitat values such as cover, instream complexity, woody debris, or substrate condition. As in Alternative A, the RTR would be managed in accordance with the Wilderness Act and the WSR Act, as appropriate. This may preclude some restoration activities for fish that require motorized transport, heavy equipment, or specialized materials.

In coordination with appropriate entities, alternatives would be developed for the removal or modification of the Page Springs gauging weir. As previously noted, the weir may affect the ability of redband trout to migrate upstream and downstream, although the extent of this effect would be unknown; the weir may possibly have limited effects on the redband trout population. Also unknown would be the effect of the weir on migration and distribution of nonnative fish that may compete with redband trout. Complete weir removal may increase nonnative competition with redband trout upstream of the weir. A partial removal or structural modification of the weir, such as notching and/or a constructed fishway, may provide for improved redband trout migration while still protecting against passage of nonnative fishes upstream. Further, by restricting the range of nonnative fish, keeping the weir in place may be more beneficial to redband trout than removing it. A detailed site assessment and analysis would be necessary to address these issues, and to ascertain that any action taken would provide overall benefits for the redband trout. Therefore, this action retains the option of no modification if analysis indicates greater benefit to the redband trout population. Coordination with other appropriate agencies under this alternative would promote such an analysis.

Indirect Effects

Wild Horses and Burros. As in Alternative A, current AMLs and wild horse forage allocation levels would be maintained in all HMAs. However, permanent increases or decreases in AMLs and forage allocations would be considered if forage availability changed greatly. Concentration of wild horses or burros in riparian areas could result in decreased riparian vegetation density and cover, reducing instream cover and shade. Adjustments in AML and forage allocations would reduce the risk of increased utilization by wild horses and burros if forage availability changed, thereby reducing the possibility of decreased riparian vegetation coverage and density, and the resulting reduction in shade and aquatic habitat cover and complexity. As in Alternative A, current water sources would be maintained, with the same effects. However, additional water sources would be developed to improve animal distribution. If properly sited and maintained, these water sources could reduce wild horse and burro concentration and use in riparian areas, thereby reducing streambank disturbance and increasing riparian vegetation coverage and density. This in turn would increase cover, habitat complexity, and shade on the stream. In some cases, the development of water sources may affect wetland habitat through diversion of water.

Recreation. The CMPA, including the RTR, would not be designated as an SRMA. Minimal recreation development and management could reduce recreation use of the RTR. Reduced recreation use could reduce localized disturbance to riparian and wetland vegetation, thereby increasing aquatic habitat cover and shade. Reduced recreation use could also result in less fishing pressure and resulting effects on redband trout. Less intensive recreation management may provide less protection for resources such as aquatic habitat and fisheries, as conflicts between recreation and resources may be less likely to be identified and resolved.

No recreational river use would be allowed. The potential effects of river use, including disturbance of spawning fish or redds, would not occur. Also, disturbance to riparian vegetation recreation use on the river would not occur.

4.7.4.3.4 Alternative C

Direct Effects

As in Alternative B, the RTR would consist of public lands on the Donner und Blitzen River and its tributaries upstream of the confluence with Fish Creek to the longitudinal extent of current and future redband trout distribution, with the same effects.

As in Alternative B, riparian and aquatic habitats would be managed for an advanced ecological status, with the same effects. As in all Alternatives, the RTR would be managed in accordance with the Wilderness Act and the WSR Act, with the same effects.

As in Alternative B, coordination would occur with appropriate entities on removal or modification of the Page Springs gauging weir, with the same effects.

Indirect Effects

Wild Horses and Burros. As in Alternative B, current AMLs and wild horse forage allocation levels would be maintained in all HMAs; adjustments to forage allocations would be considered if forage availability changed greatly, with the same effects.

As in Alternative B, current water sources would be maintained, and additional water sources would be developed to improve animal distribution, with the same effects.

Recreation. The effects would be the same as Alternative A.

4.7.4.3.5 Alternative D

Direct Effects

As in Alternative B and C, the RTR would consist of public lands on the Donner und Blitzen River and its tributaries upstream of the confluence with Fish Creek to the longitudinal extent of current and future redband trout distribution, with the same effects.

Riparian and aquatic habitats would be managed for a diversity of fish habitat values. Assuming that fish habitat objectives would be similar to those in Alternative C, effects would be similar to Alternative C. As in all Alternatives, the RTR would be managed in accordance with the Wilderness Act and the WSR Act, with the same effects.

As in Alternative B and C, coordination would occur with appropriate entities on removal or modification of the Page Springs gauging weir, with the same effects.

Indirect Effects

Wild Horses and Burros. As in Alternatives B and C, current AMLs and wild horse forage allocation levels would be maintained in all HMAs; adjustments to forage allocations would be considered if forage availability changed greatly, with the same effects.

As in Alternative B and C, current water sources would be maintained, and additional water sources would be developed to improve animal distribution, with the same effects.

Recreation. The effects would be the same as Alternative A.

As in Alternative A and C, recreational river use would be allowed only when the lowest gate on the South Steens Loop Road would be open, with the same effects.

4.7.4.3.6 Alternative E

Direct Effects

Under this alternative, the RTR would consist of public lands on the mainstem Donner und Blitzen River upstream of the confluence with Fish Creek. Tributaries with known populations of redband trout would not be included. As previously noted, the migratory and spawning patterns of redband trout in the Donner und Blitzen River system would not be well understood. Fish in the mainstem may spawn in tributaries, or the tributaries may contain populations that would be relatively distinct from the mainstem population. This alternative would potentially eliminate some redband trout populations or spawning areas from the RTR, potentially reducing the emphasis on assessment, protection, and conservation.

As in Alternative D, riparian and aquatic habitats would be managed for a diversity of fish habitat values, with the same effects. As in all Alternatives, the RTR would be managed in accordance with the Wilderness Act and the WSR Act, with the same effects.

As in Alternatives B, C, and D, coordination would occur with appropriate entities on removal or modification of the Page Springs gauging weir, with the same effects.

Indirect Effects

Wild Horses and Burros. As in Alternatives B, C and D, current AMLs and wild horse forage allocation levels would be maintained in all HMAs; adjustments to forage allocations would be considered if forage availability changed greatly, with the same effects.

As in Alternatives B, C and D, current water sources would be maintained, and additional water sources would be developed to improve animal distribution, with the same effects.

Recreation. The effects of SRMA designation would be the same as Alternative A. A river access system would be implemented to manage recreational river use, with no limits on the number of users. Recreational river use may affect Donner und Blitzen River redband trout through disturbance of spawning fish or redds. Also, increased recreation use of the river could result in localized disturbance to riparian vegetation, thereby reducing aquatic habitat cover and shade. If recreational use increases considerably in the future, with no restrictions on the number of users, these effects may not allow for the protection and enhancement of WSR ORVs.

4.7.4.4 Summary of Effects

The RTR would be within lands managed as wilderness and WSRs, and would be in the No Livestock Grazing Area. Management of wilderness requires nondegradation of resource values, and management of WSRs requires protection and enhancement of ORVs, which include the redband trout habitat. These management requirements promote maintenance or restoration of aquatic habitat values under any of the alternatives.

Recreational use in the RTR, and use of riparian areas by wild horses and burros, would vary among the alternatives. With the assumption that ORVs would be protected under any of the alternatives, aquatic habitat values would be maintained or restored under any of the alternatives. However, unlimited recreational use of the river under Alternative E, with no limits on the number of users, could potentially affect ORVs and redband trout if recreational use increases considerably, through disturbance of spawning fish or redds. Also, under Alternative A, wild horse and burro AMLs would not be adjusted to reflect changes in forage availability. If forage were substantially reduced in the RTR through fire or drought, riparian utilization by wild horses and burros could increase substantially, which may affect redband trout habitat.

Protection of genetic integrity of redband trout varies among the alternatives. Under Alternatives A and E, continued stocking of hatchery rainbow trout would occur without an emphasis on a detailed assessment of the potential genetic

effects of stocking. This may lead to interbreeding and loss of genetic integrity in the redband trout population. However, Alternative E provides for mitigation based on assessment. Alternatives B, C, and D would emphasize an assessment of the potential effects of stocking. Although ODFW management direction would be to conserve native fish, an emphasis on assessment would likely provide additional protection of redband trout genetic integrity.

The potential genetic effects of stocking would be mitigated in different ways among the alternatives. Alternative A provides no specific mechanisms for mitigation. Alternative B would eliminate many of the potential effects of interbreeding with hatchery fish by eliminating stocking in BLM reservoirs, though stocking of rainbow may still occur in other lakes and reservoirs. Alternatives C and D would promote the development of strains of redband trout to be used in local facilities or hatcheries. If these strains were developed, the risk of reducing the genetic integrity of redband trout would be minimized or eliminated. Under Alternative E, mitigation measures to protect genetic integrity while promoting public uses would be developed.

4.7.4.5 Cumulative Effects

Due to the management of the RTR for both wilderness and WSR values within the No Livestock Grazing Area, potential adverse effects would be limited to those related to recreation. Increased recreational use of the RTR may result in extensive trails systems, or many dispersed campsites, with disturbance to riparian vegetation and soils. Fishing pressure may also increase to a greater degree. However, WSR management would require protection of ORVs, and limits on recreational access may be required if disturbance to riparian areas affected redband trout or their habitat. The distribution and abundance of Donner und Blitzen River redband trout would be expected to increase through ongoing maintenance and/or improvement of riparian and aquatic habitat.

4.8 Paleontological Resources

4.8.1 Goals and Objectives

Goal 1 - Preserve, protect and manage vertebrate, noteworthy invertebrate and plant paleontological resources in accordance with existing laws and regulations to make these resources available for appropriate uses by present and future generations.

Objective 1. Using predictive modeling, locate significant localities that may be in conflict with other resource uses.

Objective 2. Research significant paleontological localities in cooperation with universities and other federal agencies.

Objective 3. Protect significant paleontological localities.

Goal 2 - Increase public knowledge of, appreciation for, and sensitivity to paleontological resources.

Objective 1: Create paleontology interpretive opportunities for public education.

4.8.2 Assumptions

Paleontological resources consist of vertebrate fossils and their geologic settings. Noteworthy plant and invertebrate fossils would also be included.

Many of the other resource management objectives and associated management actions outlined in Chapter 4 could affect any or all paleontological resources. Most of these effects could be mitigated by first discovering the localities in question through project inventory and then by project re-design or various scientific data recovery methods such as recordation, surface collection, subsurface testing, or excavation. The FLPMA and NEPA provide the legal basis for this inventory and mitigation process. Even with adherence to these acts, inadvertent loss of paleontological resources could and does occur. Protection of paleontological localities through law enforcement surveillance and other protective measures would occur under all alternatives.

Effects of other public land uses such as livestock grazing, wild horse grazing, dispersed recreation, and OHV use either go unnoticed or the activity would not be considered an undertaking, per se, and would not inventoried. These effects

would often be mitigated on a case-by-case basis as they would be discovered. Since not all fossil localities in the Planning Area would be known, the different management actions that could indirectly effect paleontological resources can be analyzed only by estimation.

4.8.3 Analysis of Alternatives

Direct Effects

4.8.3.1 Alternative A

Under Alternative B, a predictive model to locate paleontological localities that could be in conflict with other resource uses would be implemented only areas of intensive recreation use in the entire Planning Area, and livestock use areas within the Steens CMPA. The associated sample inventory to test the model and find localities would be implemented only in these target areas. Indirect effects to paleontological resources by other resource uses would be mitigated on a case-by-case basis. Paleontological research would be limited in scope. This type of research could include surface collection of fossils, cumulative surface ground disturbance of up to 20 square meters, and deeper excavation blocks of up to ten square meters. On-site interpretation and interpretive facilities construction would not be implemented, and only off-site, interpretative displays and other products would be created.

4.8.3.2 Alternative B

Under Alternative B, a predictive model to locate paleontological localities that could be in conflict with other resource uses would be implemented only in areas of intensive recreation use in the entire Planning Area, and livestock use areas within the Steens CMPA. The associated sample inventory to test the model and find localities would be implemented only in these target areas. Indirect effects to paleontological resources by other resource uses would be mitigated on a case-by-case basis. Paleontological research would be limited in scope. This type of research could include surface collection of fossils, cumulative surface ground disturbance of up to 20 square meters, and deeper excavation blocks of up to ten square meters. On-site interpretation and interpretive facilities construction would not be implemented, and only off-site, interpretative displays and other products would be created.

4.8.3.3 Alternative C

Under Alternative C, a predictive model to locate paleontological localities that could be in conflict with other resource uses would be created for the entire Planning Area. Indirect effects by other resource uses could be predicted throughout the Planning Area, and a sample inventory to test the model and locate fossil localities would be implemented in a programmatic fashion. Paleontological research would be focused on areas where conflicts with other resource uses occur under this alternative. This type of research could include surface collection of fossils, cumulative surface ground disturbance of up to 100 square meters, and deeper excavation blocks of up to 50 square meters. Protection of paleontological localities through law enforcement surveillance and other protective measures would occur. Off-site interpretive facilities would be constructed and self-guided walking tour brochures would be created. This interpretation program could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.8.3.4 Alternative D

Under Alternative D, a predictive model to locate paleontological localities that could be in conflict with other resource uses would be created for the entire Planning Area. Indirect effects by other resource uses could be predicted throughout the Planning Area and a sample inventory to test the model and locate fossil localities would be implemented in a programmatic fashion. Paleontological research would be focused on areas where conflicts with other resource uses occur under this alternative. This type of research could include surface collection of fossils, cumulative surface ground disturbance of up to 200 square meters, and deeper excavation blocks of up to 100 square meters. Protection of paleontological localities through law enforcement surveillance and other protective measures would occur. Off-site interpretive facilities would be constructed and self-guided walking tour brochures would be created. This interpretation program could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.8.3.5 Alternative E

Under Alternative E, a predictive model to locate paleontological localities that could be in conflict with other resource uses would be created for the entire Planning Area. Indirect effects by other resource uses could be predicted throughout the Planning Area and a sample inventory to test the model and locate fossil localities would be implemented in a programmatic fashion. Sample inventories would be increased to account for increased commodity uses. Paleontological research would be conducted in all known localities in the Planning Area. This type of research could include surface collection of fossils, cumulative surface ground disturbance of greater than 400 square meters, and deeper excavation blocks of greater than 200 square meters to support increased natural history tourism. Protection of paleontological localities through law enforcement surveillance and other protective measures would occur. On-site and off-site interpretive facilities would be constructed and self-guided walking tour brochures would be created in order to support increased natural history tourism. This interpretation program could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.8.3.5.1 Indirect Effects Common to All Alternatives

The management of the following resources or uses could indirectly affect cultural and paleontological resources. All could affect cultural resources under all alternatives. Effects vary in magnitude across the alternatives.

Water Resources, Riparian/Wetland, Fish and Special Status Fish Habitat. Water resources, riparian/wetland, fish habitat and special status fish species habitat management tend to be intertwined and could affect paleontological resources. Most management actions associated with these water and related resources would be focused on protection or restoration of riparian corridors. One potential indirect effect caused by increased protection of riparian or wetland areas through physical barriers or decreased use would be the potential increased use in the uplands. Paleontological resources in upland areas that previously received little or no livestock use could be subjected to livestock trampling and trailing effects in certain locations under a more upland-focused grazing system.

Management actions under Alternatives A, C, and D would generally provide similar levels of protection to paleontological resources because livestock grazing intensity would be approximately the same in these three alternatives. Water resources and related projects in these three alternatives could indirectly effect paleontological resources in upland areas because grazing intensity would increase in these areas. Alternative E would probably see the most active water resources management because of the focus on commodity extraction. This alternative could result in the greatest effects to paleontological resources, particularly in upland areas when the riparian areas would be closed to livestock and wild horse grazing.

Special Status Animal Species Habitat, Rangelands Vegetation, and Noxious Weeds. Special status animal species habitat, rangeland vegetation, and noxious weed management projects would be focused on manipulation of plant communities for various reasons. Most vegetation management actions could result in short-term effects on paleontological resources because of increased ground visibility and heightened potential for erosion. However, since vegetation management actions would be intended to increase vegetation cover and provide soil stability, they provide long-term protection for paleontological resources.

Vegetation management projects under Alternatives C, D, and E would probably result in the most acres of changed plant communities and provide the greatest long-term protection to paleontological resources. Alternative B would result in the least number of acres converted and provide the least protection for paleontological sites. Vegetation management projects under Alternative A would be fewer than in Alternatives C, D, and E but more than in Alternative B. As a result, paleontological resources would be most protected under Alternatives C, D, and E, less under Alternative A and the least under Alternative B.

Woodlands. Juniper woodland treatments can affect paleontological resources by decreasing the potential for erosion and eventually increasing ground cover. "Drop and leave" slash treatment in woodland management would be preferred to "drop and burn" treatment. When slash would be burned, ground cover would be eliminated allowing increased soil erosion. However, without some type of juniper management, many areas of sagebrush-juniper steppe would evolve into juniper woodland, resulting in erosion that increases ground visibility. This could lead to surface and subsurface damage to paleontological resources that destroys scientific data and leads to increased illegal fossil collecting.

Juniper woodland management would be the most active under Alternatives A, C, D, and E. When downed slash would not be burned or trees were girdled and burned standing, paleontological resources could be protected by active woodland management. If downed slash were burned, paleontological resources would be affected in the short term by increased soil erosion and increased ground visibility. Juniper woodland management under Alternative B would be limited because Alternative B relies on natural processes to "manage" these woodlands. This alternative could result in the greatest effects on paleontological resources because of increased ground visibility and surface erosion.

Social and Economic Values. Existing socioeconomic values would be primarily focused on consumptive use with the trend toward increasing emphasis on nonconsumptive uses. Effects on paleontological resources would be greater with consumptive than nonconsumptive use because consumptive uses would be more likely to result in ground disturbances than most nonconsumptive uses or resource management strategies. An exception to this association would be recreation use. Although such use would be nonconsumptive, dispersed recreation can result in increased illegal collection of fossils and disturbance of fossil localities.

Alternative B would be the least consumptive and affect paleontological resources the least. Alternative E, the most consumptive, would affect paleontological resources the most. Alternatives C, D, and A, intermediate between B and E, would moderately affect paleontological resources.

Energy and Minerals. In general, the fewer restrictions on the exploration and extraction of energy and mineral resources, the greater the effect on paleontological resources. The amount of time required to complete paleontological clearances and mitigate effects on localities with high potential would be variable, depending on the type of mineral and the permitting process. However, many of the effects resulting from these activities would be mitigated.

Minerals management under Alternative E would be the least restrictive and affect paleontological resources to the greatest degree. Alternative A would be the second least restrictive, with Alternatives C and D offering much greater restrictions such as NSO stipulations near significant fossil localities. Minerals management under Alternative B would be the most restrictive and affects paleontological resources the least.

Lands and Realty. Lands and realty management could affect paleontological resources, most notably loss of management from loss through land exchanges and land sales. These effects could be mitigated through adherence to the FLPMA. As with land tenure actions, the effects created by utility line construction would be mitigated. Restrictions or elimination of utility corridors can reduce effects on paleontological resources. Existing (Alternative A) land tenure management emphasis would be increasingly focused on acquiring high value lands and management easements, while utility development would be relatively static.

Acquiring high value paleontological properties and meeting paleontological resource objectives would be possible under existing management, but would be improved under Alternatives B, C, and D. Lands and realty management under Alternative E would result in the greatest effects on paleontological resources from increased land disposals and potentially greater numbers of utility corridors and the elimination of land purchases.

Wild Horses and Burros

Paleontological resources would be affected by wild horse use in a similar manner as livestock grazing. Construction of additional water developments to promote an even use of the landscape and provide for water during drought years could affect paleontological resources through increased use in the uplands. Paleontological resources in upland areas that receive little or no wild horse use could be subjected to trampling and trailing effects in certain locations under a more upland-focused livestock grazing system.

Wild horse use would be approximately the same under all the alternatives because wild horse numbers would be managed at similar levels. Impacts to paleontological resources from wild horses would therefore be the same under all alternatives.

Grazing Management. Livestock grazing use can affect paleontological localities through livestock trampling, wallowing, and trailing. Low level trampling would be probably the norm for most localities. Paleontological resources in upland areas that receive little or no wild horse use could be subjected to trampling and trailing effects in certain locations under

a more upland-focused livestock grazing system. In general, the more livestock grazing would be restricted, the fewer the effects on paleontological resources.

Livestock grazing would be limited to a portion of the CMPA under Alternative B. This alternative would dramatically decrease livestock grazing effects on paleontological resources. Alternatives A, C, and D would allow more livestock grazing than Alternative B and the resultant effects would be greater. Alternative E, maximum commodity production, would result in the greatest effects on paleontological resources. These effects could be partially offset with increased grass seedings to provide greater soil stability.

Fire Management. Wildland fire and wildland fire suppression affect paleontological resources in a number of ways. Suppression activities such as OHV use, bulldozing control lines, and occupation of fire camps can damage paleontological resources through sediment compaction and altered surface water drainage. Wildfire removes ground cover and exposes rock and soil to erosion, subjecting paleontological localities to damage from wind and water erosion and illegal collecting. In general, even though suppression can damage paleontological resources in specific ways, well planned suppression would be preferable to allowing wildfires to burn unchecked. The resultant erosion, in particular, can result in damage to localities.

Wildfire suppression would be most active under Alternatives A, C, D, and E. Impacts to paleontological localities from wildland fire and suppression would be at similar levels under these alternatives. Under Alternative B, wildland fire suppression would be limited and fires would be allowed to burn larger areas than under any of the other alternatives. This emphasis on naturalness would affect paleontological resources to a greater extent than any of the other alternatives. Increased erosion would occur where greater amounts of burned acreage create larger exposures of surface rock and soil, subjecting paleontological localities to damage from wind and water erosion and the possibility of illegal fossil collecting.

Prescribed burning can affect paleontological resources by increasing short-term ground surface visibility and, potentially, surface runoff and erosion. This greater visibility makes fossils more accessible and can lead to increased illegal collection. These short-term effects would be mitigated through prior paleontological inventory, systematic surface fossil collection and/or post-fire monitoring. After a few seasons of growth, plant cover should decrease ground visibility. Decreased visibility can affect paleontological locality through decreased potential for illegal collecting. Prescribed fire management actions would usually be planned to target a certain plant species or plant association, while preserving other portions of the plant community. Under this prescription, paleontological resources would not be substantially affected. However, if the burn plan calls for extreme heat generation to eliminate a target plant species that would be difficult to remove (e.g., juniper), paleontological resources could be affected by increased soil exposure and erosion.

Prescribed wildfire would be most active under Alternatives A, C, D, and E. Impacts to paleontological resources from prescribed wildland fire would be at similar levels under these alternatives. Prescribed burning could be limited under Alternative B. Thus, paleontological resources would be less affected by short-term ground surface visibility, exposure of surface sediments to wind and water erosion, and loss of fossils to illegal collectors.

Transportation and Roads. Road construction can expose paleontological localities and, therefore, aid in their discovery. The discovery would not be without cost as a portion of the locality would be destroyed during the construction. Roads allow access to paleontological resources. This access could result in illegal surface collection and excavation, however, open vehicular access to paleontological resources affords the BLM an opportunity for paleontological resource monitoring and management.

Alternatives that would dramatically decrease motorized access would be Alternatives B and C. Under these alternatives illegal fossil collection and excavation could likely continue at present or higher levels because vandals could ignore road closures. In addition, they might feel more secure in their illicit activities if the BLM was hampered in its monitoring efforts. Alternatives that would only slightly reduce or not reduce motorized access would be Alternatives A, D, and E. Access to public lands would allow illegal fossil collecting and excavation at present rates but would also permit greater access to law enforcement in surveillance operations.

Off-Highway Vehicles. Unrestricted OHV and mechanized use affects paleontological resources. Compaction, altered surface water drainage, and erosion would all be effects to the landscape and, by extension, to paleontological resources. Organized OHV and mechanized event locations could be cleared and any effects mitigated through adherence to the

FLPMA and NEPA; however, the effects caused by dispersed OHV and mechanized vehicle activity would not be mitigated unless they were discovered. Alternatives A and E would be the least restrictive to OHV and mechanized vehicle use within the Planning Area. Alternative D would be considerably more restrictive than Alternatives A or E, with a limited number of acres designated as open to OHV and mechanized vehicle use. Alternatives B and C offer no areas designated as open to OHV and mechanized vehicle use. Alternative B would be the most restrictive with the majority of the Planning Area designated as limited to designated roads and trails or closed to OHV and mechanized vehicle use. Alternative C designates fewer acres as closed, but still limits OHV and mechanized vehicle use in most of the Planning Area to designated roads, ways, and trails. Alternatives A and E would affect paleontological resources to the greatest degree. Alternative D would result in fewer effects than Alternatives A and E. Alternative C followed by Alternative B would result in the fewest OHV- and mechanized vehicle related effects on paleontological resources.

Recreation. Recreation development/management creates different effects to paleontological resources. A greater use of interpretive developments at developed recreation facilities could increase public awareness and education, which could potentially result in decreased illegal collecting and locality damage. Increased recreation development, on the other hand, could bring more people to the area and more visitors could mean greater illegal collection and locality damage. Developed recreation has fewer effects to paleontological resources than non-developed recreation because it concentrates people in small, predictable areas. Dispersed recreation emphasis would attract visitors to places that have not received much use in the past, therefore, this type of use would be much less predictable and measurable. Under Alternatives A and D, recreation development levels would be very low and dispersed recreation use would be gradually increasing. Under Alternatives B and C, the emphasis would be on dispersed and undeveloped recreation. Recreation use under Alternative E would likely stress developed recreation facilities in order to accommodate increased visitation. Determining which alternative would affect paleontological resources the most would be difficult. Since dispersed recreation activities would be the most difficult to monitor and control, Alternatives B and C may have the greatest effects on paleontological resources.

Areas of Critical Environmental Concern, Wilderness, and Wilderness Study Areas. With their greater emphasis on natural values, ACECs, wilderness, and WSA designations can reduce the number of effects on paleontological resources because they reduce the number of land disturbing activities in an area. The greater the number of acres designated, the fewer effects on paleontological resources.

Alternative A, with the second largest acreage devoted to ACECs, would result in fewer effects to paleontological resources than all the alternatives except Alternative C. The number of acres of either wilderness or WSAs within the Planning Area would be similar for all alternatives. Therefore, the effects on paleontological resources would be the same under all alternatives.

Wild and Scenic Rivers. WSR designations can indirectly affect paleontological resources, especially through their relationship to livestock grazing management. Placing few restrictions on grazing in the river corridors would result in effects to paleontological resource sites through trampling, trailing, and wallowing. Greater restrictions placed on grazing in the river corridors could result in concentrated livestock use at river crossings and water gaps. Total exclusion of grazing in the river corridor can focus livestock grazing effects on lightly used upland areas, resulting in increased effects on paleontological localities in the uplands. As a consequence, increased restrictions or exclusion of grazing in the WSR corridors would increase effects on paleontological resources outside the corridors, while decreasing effects within them.

Alternative C recommends more miles of river as suitable for designation as WSRs by Congress than all the other alternatives. Therefore, Alternative C would provide the fewest effects on paleontological resources because eligible river corridors would continue to be managed under more restrictive interim guidance.

4.8.4 Summary of Effects

With the exception of fire suppression and forest/woodland management, Alternative B would result in the fewest effects on paleontological resources of all the alternatives. With extremely limited suppression efforts and few allowances for prescribed fire, no provision would be made for locating or protecting localities that could be affected by wildfire. Fuels reduction would be relegated to natural forces, resulting in more intense fires of longer duration. This type of fire would damage paleontological resources through increased soil exposure and erosion. Increased erosion and ground visibility in unmanaged juniper woodlands could result in increased effects on paleontological resources.

Alternative E would be the least restrictive of all the alternatives and would result in the greatest level of effects on paleontological resources. An analysis of the remaining alternatives shows that the next lower level of effects would occur under Alternative A, followed in order by Alternatives D and C. This order would be based on the increased emphasis on natural values and decreased commodity use.

4.8.5 Cumulative Effects

Since most paleontological resources would be location specific, fragile, and nonrenewable, direct and indirect effects would be, by nature, cumulative. A paleontological site can be subjected to grazing pressure, OHV use, and illegal collecting. Each instance of degradation reduces the capacity for that paleontological locality to answer questions about prehistoric animals, plants, and environments; eventually the locality may be totally destroyed in terms of information potential.

A recurring issue seen repeatedly within different, though related, resources would be the issue of livestock grazing in riparian corridors. Water resources, fish and wildlife, and their respective habitats, rangeland/grazing use, and WSR management all focus either partially or fully on riparian corridor management. Cumulative effects on paleontological resources would be reduced when livestock grazing would be restricted or excluded in these areas, since some paleontological localities occur near riparian areas. The potential to increase effects on paleontological resources in upland areas when grazing in the riparian areas would be restricted or discontinued could also increase cumulative effects. This increase in effects would be likely to be widespread and to go unnoticed even if all other resource objectives would be met. Effects that would be unnoticed could not be mitigated.

Paleontological resources fare best when the uses of public lands would be restricted to those that cause the least ground disturbance.

4.9 Cultural Resources

4.9.1 Goals and Objectives

Goal 1 - Preserve, protect and manage cultural resources in accordance with existing laws, regulations, and Executive Orders, in coordination/consultation with the Burns Paiute Tribe, other Native American tribes, Harney County Historical Society, and other heritage groups to make cultural resources available for appropriate uses by present and future generations.

Objective 1. Using predictive modeling, locate significant sites that may be in conflict with other resource uses.

Objective 2. Use Section 110 inventories to locate significant sites in the Planning Area.

Objective 3. Research significant cultural sites in cooperation with universities, the Burns Paiute Tribe, other tribes, and heritage partners.

Objective 4. Use protective measures to safeguard significant cultural sites.

Objective 5. Pursue land acquisitions to bring significant sites into public ownership.

Objective 6. Stabilize, restore or reconstruct significant historic structures to provide public safety and recreational and interpretive opportunities.

Goal 2 -: Increase public knowledge of, appreciation for, and sensitivity to cultural resources.

Objective 1: Create cultural resources interpretive opportunities and sites for public education in coordination with the Burns Paiute Tribe, other tribes, and/or heritage partners, as appropriate.

4.9.2 Assumptions

Cultural resources would be an inclusive term that includes historic structures and sites and prehistoric archaeological sites. Since prehistoric sites would be the heritage of American Indian tribes, the BLM would be mandated to consult and coordinate with the Burns Paiute and other tribes in order to protect their heritage on public lands.

Many of the other resource management objectives and associated management actions outlined in this analysis could affect any or all cultural resources. Most of these effects could be mitigated by first discovering the sites in question through project inventory and then by project re-design or various scientific data recovery methods such as recordation, surface collection, subsurface testing, or excavation. The basis for this inventory and mitigation process would be Section 106 of the National Historic Preservation Act of 1966. Even with adherence to these acts, inadvertent loss of cultural resources could and does occur.

Effects of other public land uses such as livestock grazing, wild horse grazing, dispersed recreation, and OHV either go unnoticed or the activity would not be considered an undertaking, per se, and is not inventoried. These effects would be mitigated only as they were discovered, on a case-by-case basis. The following analysis of effects is a discussion of both unaccounted-for effects and mitigated effects, and their predicted intensity by alternative. In addition, cumulative effects resulting from the interaction of various management objectives and actions would be discussed. Since not every cultural resource in the Planning Area is known, the different management actions that could indirectly affect cultural resources can be analyzed only by estimation.

4.9.3 Analysis of Alternatives

Direct Effects

4.9.3.1 Alternative A

Under Alternative A, a predictive model to locate significant sites that might be in conflict with other resource uses would not be created, and indirect effects by other resource uses would be mitigated only when found, on a case-by-case basis. Proactive inventories would occur at a rate of approximately 500 acres per year. This would result in a slow, incremental accumulation of cultural resource data. Scientific research could consist of numerous 50 by 50 centimeter test excavations, excavation blocks of up to 100 square meters in extent, and backhoe trenches measuring up to 20 meters long and four meters deep. Under Alternative A, this type of research would be focused on significant cultural sites where other resource conflicts occur. No physical protection measures other than a caretaker at Riddle Brothers Ranch National Historic District would be implemented at significant sites or groups of sites under this alternative. However, law enforcement surveillance and monitoring of certain significant sites and groups of sites within wildland fire areas would occur. Under this alternative, no land acquisitions would occur to bring significant sites into public ownership. Inventory, assessment, and preservation activities (e.g., stabilization, restoration, and reconstruction) at historic sites would occur under this alternative. On-site and off-site interpretation could be implemented under this alternative, and could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.9.3.2 Alternative B

Under Alternative B, a predictive model to locate significant sites that might be in conflict with other resource uses would be limited to recreation use areas in the Planning Area and livestock use areas within the CMPA. Indirect effects by other resource uses would be mitigated only when found, on a case-by-case basis. Proactive inventories would occur at a rate of approximately 500 acres per year. This would result in a slow, incremental accumulation of cultural resource data. Scientific research could consist of numerous 50 by 50 centimeter test excavations, excavation blocks of up to 100 square meters in extent, and backhoe trenches measuring up to 20 meters long and four meters deep. This type of research would be implemented on a limited basis. No physical protection measures would be implemented at significant sites or groups of sites under this alternative; however, law enforcement surveillance and monitoring certain significant sites and groups of sites within wildland fire areas would occur. Under this alternative, land acquisitions to bring significant sites into public ownership would be pursued; the previously private portions of sites would be studied on a limited basis; maintenance of structures within the Riddle Brothers Ranch National Historic District, and inventory and assessment of other historic structures would occur. Active management such as developing restoration plans and

preservation activities (e.g., stabilization, restoration and reconstruction) at historic sites would not occur, and on-site interpretation and interpretive facilities construction would not be implemented under this alternative. Only off-site interpretive displays would be created.

4.9.3.3 Alternative C

Under Alternative C, a predictive model to locate significant sites that may be in conflict with other resource uses would be implemented throughout the Planning Area. Indirect effects by other resource uses could be predicted in the Planning Area and a sample inventory to test the model and locate sites would be implemented in a programmatic fashion. Proactive inventories would occur at a rate of approximately 500 acres per year. This would result in a slow, incremental accumulation of cultural resource data. Scientific research could consist of numerous 50 x 50 centimeter test excavations, excavation blocks of up to 100 square meters in extent, and backhoe trenches measuring up to 20 meters long and four meters deep. Under Alternative C, this type of research would be focused on significant cultural sites where other resource conflicts occur; physical protection measures such as fencing, OHV and road closures, use of caretakers and rip-rap in active shorelines would be implemented at significant sites or groups of sites; law enforcement surveillance and monitoring certain significant sites and groups of sites within wildland fire areas would occur; and land acquisitions to bring significant sites into public ownership would be pursued. Under this alternative, the previously private portions of sites would be studied on an unlimited basis; inventory, assessment and preservation activities (e.g., stabilization, restoration and reconstruction) at historic sites would occur; and on-site and off-site interpretation could be implemented. This type of interpretation could result in construction of road pull-outs, kiosks or sign bases and placement of interpretive signs at various locations in the Planning Area.

4.9.3.4 Alternative D

Under Alternative D, a predictive model to locate significant sites that may be in conflict with other resource uses would be implemented throughout the Planning Area. Indirect effects by other resource uses could be predicted in the Planning Area and sample inventory to test the model and locate sites would be implemented in a programmatic fashion. Proactive inventory would occur at a rate of approximately 500 acres per year. This would result in a slow, incremental accumulation of cultural resource data. Scientific research could consist of numerous 50 x 50 centimeter test excavations, excavation blocks of up to 100 square meters in extent, and backhoe trenches measuring up to 20 meters long and four meters deep. Under Alternative D, this type of research would be focused on significant cultural sites where other resource conflicts occur; physical protection measures such as fencing, OHV and road closures, use of caretakers, and rip-rap in active shorelines would be implemented at significant sites or groups of sites; law enforcement surveillance and monitoring certain significant sites and groups of sites within wildland fire areas would occur; land acquisitions to bring significant sites into public ownership would be pursued; and the previously private portions of sites would be studied on an unlimited basis. Inventory, assessment, and preservation activities (e.g., stabilization, restoration and reconstruction) at historic sites would occur under this alternative. On-site and off-site interpretation could be implemented under this alternative, and could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.9.3.5 Alternative E

Under Alternative E, a predictive model to locate significant sites that may be in conflict with other resource uses would be implemented throughout the Planning Area. Indirect effects by other resource uses could be predicted in the Planning Area, and sample inventory to test the model and locate sites would be implemented in a programmatic fashion. Sample inventory acreage would be increased to account for increased commodity use. Proactive inventory would be increased under this alternative to support increased heritage tourism. Scientific research could consist of numerous 50 by 50 centimeter test excavations, excavation blocks of up to 100 square meters in extent, and backhoe trenches measuring 20 meters long and four meters deep. Under Alternative E, this type of research would be increased at significant cultural sites in order to support increased heritage tourism; physical protection measures such as fencing, OHV and road closures, use of caretakers, and rip-rap in active shorelines would be implemented at significant sites or groups of sites; law enforcement surveillance and monitoring of certain significant sites and groups of sites within wildland fire areas would occur. Land acquisitions to bring significant sites into public ownership would not be pursued in this alternative. Inventory, assessment and preservation activities (e.g., stabilization, restoration and reconstruction) at historic sites would increase under this alternative in order to support increased heritage tourism. On-site and off-site interpretation

would be increased under this alternative. This type of interpretation could result in construction of road pull-outs, kiosks or sign bases, and placement of interpretive signs at various locations in the Planning Area.

4.9.3.5.1 Indirect Effects Common to All Alternatives

The management of the following resources or uses could indirectly affect cultural resources. All could affect cultural resources under all alternatives. Effects vary in magnitude across the alternatives.

Water Resources, Riparian/Wetland, Fish Habitat and Special Status Fish Species Habitat. Management of these resources tends to be intertwined and affect cultural resources (particularly archaeological sites and historic ranches) in a similar fashion. Most management actions that promote better water quality, riparian/wetland health, or fish habitat would likely result in preservation, or at least decreased degradation, of archaeological sites. When designing water developments, inclusion of cultural resources within physical barriers to protect them from livestock is of critical importance. One potential indirect impact caused by increased protection of riparian or wetland areas through physical barriers or decreased use is the commensurate increased use in the uplands. Cultural resources in certain upland locations that previously received little or no livestock use could be subjected to livestock trampling and trailing effects under a more upland-focused grazing system.

Management actions under Alternatives A, C, and D would generally provide similar levels of protection to cultural resources because livestock grazing intensity would be approximately the same in these three alternatives. Water resources and related projects in these three alternatives could indirectly impact cultural resources in upland areas, as grazing would be increasingly forced into those areas. Alternative B would eliminate livestock grazing everywhere in the Planning Area except a portion of the CMPA. The areas still grazed in the CMPA would be open for water resources projects and these could likely indirectly protect cultural sites. With grazing eliminated elsewhere, water resources and related projects would not be necessary except where rehabilitation or restoration of stream system(s) is warranted. These projects in the No Livestock Grazing portions of the Planning Area would not indirectly protect or degrade cultural resources. Alternative E would probably see the most active water resources management because of the focus on commodity extraction. This alternative would likely result in the greatest effects on cultural resources, particularly in upland areas when the riparian areas would be closed to livestock and wild horse grazing.

Special Status Animal Species Habitat, Rangeland Vegetation, and Noxious Weeds. Vegetation management projects would be focused on manipulation of plant communities for various reasons. Most vegetation management actions could result in short- term effects on cultural resources because of increased ground visibility and heightened potential for erosion. However, since vegetation management actions would be intended to increase vegetation cover and provide soil stability, they affect cultural resources over the long term. In general, these projects provide fewer long-term effects than short-term effects to cultural resources.

Vegetation management projects under Alternatives C, D, and E (increased seedings for livestock forage) would probably result in the most acres of changed plant communities and provide the greatest long-term protection to cultural resources. Alternative B would result in the least number of acres converted and provide the least protection for cultural sites. Vegetation management projects under Alternative A would be less numerous than Alternatives C, D, and E, but more than in Alternative B. As a result, cultural resources would be affected most under Alternatives C, D, and E, less under Alternative A and the least under Alternative B.

Woodlands. Juniper woodland treatments can result in effects to archaeological sites, but the primary agent of site damage is the type of fuel treatment after falling the trees. "Drop and leave" or girdling juniper control results in little impact to sites, and provides decreased sediment erosion and protection from illegal collection. "Drop and burn" fuels disposal can result in extensive damage to cultural resources due to high heat outputs. However, both forms of fuels treatment in woodland management would be preferred to no woodland management because they eventually result in greater ground cover and decreased erosion. With many areas of sagebrush-juniper steppe moving in the direction of a juniper woodland ecozone, erosion and increased ground visibility would be likely outcomes. These two results lead to surface and subsurface damage to archaeological sites and increased illegal artifact collecting.

Juniper woodland management would be the most active under Alternatives A, C, D, and E. When downed slash would not be burned or trees were girdled and burned standing, cultural resources would be affected by active woodland management. If downed slash were burned, cultural resources would suffer short-term damage, but be affected over the

long term by increased soil stability and decreased ground visibility. Juniper woodland management under Alternative B would be limited because this alternative relies on natural processes to "manage" these woodlands. This alternative could result in the greatest impact to cultural resources because of increased ground visibility and surface erosion. Increased ground visibility aids illegal collectors, while increased erosion exposes more artifacts for collection and destroys site integrity and scientific data.

Social and Economic Values. Existing socioeconomic values would be primarily focused on consumptive use, with the trend toward increasing emphasis on nonconsumptive uses. As would be expected, effects upon cultural resources would be greater with consumptive uses, since they would be more likely to result in ground disturbance than most nonconsumptive uses or resource management strategies. An exception to this association would be recreation use.

Alternative B would be the least consumptive and affect cultural resources the least. Alternative E, the most consumptive, would affect cultural resources the most. Alternatives C, D, and A, intermediate between B and E, would moderately affect cultural resources.

In general, the fewer restrictions on the exploration and extraction of energy and mineral resources the greater the effect on cultural resources. The amount of time required to complete Section 106 clearances and mitigate effects on significant sites would be variable, depending on the type of mineral and permitting process. In any case, many of the effects resulting from these activities would be mitigated through various means.

Minerals management under Alternative E would be the least restrictive and affect cultural resources to the greatest degree. Alternative A would be the second least restrictive, with Alternatives C and D offering much greater restrictions such as NSO stipulations near National Register of Historic Places eligible and listed sites. Minerals management under Alternative B would be the most restrictive and affect cultural resources the least.

Lands and Realty. Lands and reality management can affect cultural resources, primarily through land exchanges and land sales. These effects would be mitigated through adherence to the National Historic Preservation Act. As with land tenure actions, the effects created by utility line construction would be mitigated. Restriction or elimination of utility corridors reduces effects on cultural resources; the greater the restrictions and the fewer the utility corridors, the fewer effects on cultural resources. Existing (Alternative A) land tenure management emphasis would be increasingly focused on acquiring high value lands and management easements, while utility development would be relatively static.

Acquiring high value cultural properties and meeting cultural resource objectives would be a real possibility under existing management, but would be improved under Alternatives B, C, and D. Lands and realty management under Alternative E would result in the greatest effects on cultural resources due to increased land disposals, potentially greater numbers of utility corridors, and the elimination of land purchases.

Wild horses and Burros. Cultural resources would be affected by wild horse use in a manner similar to livestock grazing. These effects would be trampling, wallowing, and trailing, especially near fenced or unfenced watering areas. Construction of additional water developments to promote an even use of the landscape and to provide for water during drought years could affect cultural resources. Wild horse use of existing water sources, many of which would be near cultural resources, would be reduced. However, one potential effect caused by increased protection of riparian or wetland areas through physical barriers or decreased use would be the commensurate increased use in the uplands. Cultural resources in upland areas that previously received little or no wild horse use could be subjected to trampling and trailing effects in certain locations under an increased upland focused system.

Wild horse use would be approximately the same under all the alternatives because horse numbers would be managed at similar levels. Therefore, magnitude of effects on cultural resources from wild horses would be the same under all alternatives.

Grazing. Livestock grazing use would be a major contributor to archaeological site damage (14 to 18 percent of all sites damaged in the Planning Area). These percentage estimates would likely be too low, as damage would usually be reported only when trampling would be obvious. Since livestock trampling would be widespread, low level trampling would probably be the norm for most sites. Construction of additional water developments to promote an even use of the landscape and to provide for water during drought years could affect cultural resources. Livestock use of existing water sources, many of which would be near cultural resources, would be reduced. However, one potential effect caused

by increased protection of riparian or wetland areas through physical barriers or decreased use would be the commensurate increased use in the uplands. Cultural resources in upland areas that previously received little or no wild horse use could be subjected to trampling and trailing effects in certain locations under an increased upland focused system. In general, the greater the restrictions on livestock grazing, the fewer the effects on cultural resources.

Livestock grazing would be limited to a portion of the CMPA under Alternative B. This alternative would dramatically decrease livestock grazing effects on cultural resources. Alternatives A, C, and D would allow more livestock grazing than Alternative B, and the resultant effects would be greater. Alternative E, maximum commodity production, would result in the most effects on cultural resources. These impacts could be partially offset with increased grass seedings to provide greater soil stability.

Fire Management. Wildland fire and wildland fire suppression affect cultural resources in a number of ways. Obviously, fires destroy burnable cultural resources such as historic buildings and other wooden structures and features. Less obvious would be the destruction of, or damage to, prehistoric rock art, surface scatters of stone artifacts, and waste stone debris. Fire suppression activities such as OHV use, bulldozing of control lines, and occupation of fire camps can damage cultural resources through sediment compaction and artifact displacement. Soil chemistry at archaeological sites can be dramatically changed with the use of fire retardants, especially in areas of low annual rainfall where leaching would be minimal. Wildfire removes ground cover and exposes rock and soil to erosion, subjecting subsurface archaeological sites to damage from wind and water erosion and illegal collecting. In general, even though suppression can damage cultural resources in specific ways, well-planned suppression would be preferable to allowing wildfires to burn unchecked. The resultant erosion, in particular, can result in damage to sites.

Wildland fire and wildland fire suppression affect cultural resources in a number of ways. Obviously, fires destroy burnable cultural resources such as historic buildings and other wooden structures and features. Less obvious would be the destruction of, or damage to, prehistoric rock art, surface scatters of stone artifacts, and waste stone debris. Fire suppression activities such as OHV use, bulldozing of control lines, and occupation of fire camps can damage cultural resources through sediment compaction and artifact displacement. Soil chemistry at archaeological sites can be dramatically changed with the use of fire retardants, especially in areas of low annual rainfall where leaching would be minimal. Wildfire removes ground cover and exposes rock and soil to erosion, subjecting subsurface archaeological sites to damage from wind and water erosion and illegal collecting. In general, even though suppression can damage cultural resources in specific ways, well-planned suppression would be preferable to allowing wildfires to burn unchecked. The resultant erosion, in particular, can result in damage to sites.

Wildfire suppression would be most active under Alternatives A, C, D, and E. Effects to cultural resources from wildland fire and suppression would be at similar levels under these alternatives. Under Alternative B, wildland fire suppression would be limited and fires would be allowed to burn larger areas than under any of the other alternatives. This emphasis on naturalness would affect cultural resources to a greater extent than any of the other alternatives. Greater burned acreage would mean greater exposure of surface sediments to erosion, subjecting subsurface archaeological sites to damage from wind and water erosion and illegal collecting.

Prescribed wildfire would be achieved at similar levels under all the alternatives. Effects on cultural resources from prescribed wildland fire would be at similar levels under all the alternatives.

Transportation and Roads. Roads allow access to cultural resources, which can result in illegal surface collection and excavation. Open vehicular access to cultural resources affords an opportunity for cultural resource monitoring and management.

Alternatives that would dramatically decrease motorized access would be Alternatives B and C. Under these alternatives illegal surface collection and excavation could likely continue at present or higher levels because vandals could ignore road closures. In addition, they might feel more secure in their illicit activities if the BLM was hampered in its monitoring efforts. Alternatives that would only slight reduce or not reduce motorized access would be Alternatives A, D and E. Access to public lands would allow illegal looting and excavation at present rates but would also permit greater access to law enforcement in surveillance operations.

Off-Highway Vehicles. Unrestricted OHV and mechanized vehicle use harms cultural resources, causing compaction, altered surface water drainage and erosion on the landscape and, by extension, to cultural resources. Organized OHV

and mechanized vehicle event locations can be cleared and effects mitigated through adherence to the National Historic Preservation Act, but the effects caused by dispersed OHV activity would not be mitigated unless they were discovered.

Alternatives A and E place the fewest restrictions on OHV and mechanized vehicle use within the Planning Area. Alternative D would be considerably more restrictive than Alternatives A or E, with a limited number of acres designated as open to OHV and mechanized vehicle use. Alternatives B and C offer no open areas for OHV and mechanized vehicle use. Alternative B would be the most restrictive, with OHV and mechanized vehicle use in the majority of the Planning Area limited to designated roads and trails or closed to OHV use. Alternative C designates fewer acres as closed, but still limits OHV and mechanized vehicle use in most of the Planning Area to designated roads, ways, and trails. Alternatives A and E would affect cultural resources to the greatest degree. Alternative D would result in fewer effects than Alternatives A and E. Alternative C followed by Alternative B would result in the fewest OHV- and mechanized vehicle related effects to cultural resources.

Recreation. Recreation development/management would be a double-edged sword in relation to cultural resources. Greater use of interpretive facilities at developed recreation facilities can increase public awareness and education, thereby decreasing illegal collecting and site vandalism. However, increased recreation development generally brings more people to the area; more visitors could mean greater illegal collection and site damage. Developed recreation would be viewed as only slightly less detrimental to cultural resources than dispersed recreation because it tends to concentrate people in small, predictable areas. Dispersed recreation emphasis tends to attract visitors to areas that previously had lower levels of use. This type of use would be much less predictable and measurable. Under Alternatives A and D, recreation development would be very low, and dispersed recreation use would be gradually increasing. Under Alternatives B and C, management emphasis would be on dispersed recreation. Recreation use under Alternative E would likely stress developed recreation facilities in order to accommodate increased visitations. Determining which alternative would affect cultural resources to the most would be difficult. Since dispersed recreation activities would be the most difficult to monitor and control, Alternatives B and C may have the greatest effects on cultural resources.

Areas of Critical Environmental Concern, Wilderness, WSAs and WSRs. With their greater emphasis on natural values, ACECs, Wilderness, and WSAs can affect cultural resources because they reduce the number of land disturbing activities in an area. The greater the number of designated acres, the greater the effects on cultural resources.

Alternative A, with the second largest acreage devoted to ACECs, would affect cultural resources to a greater degree than all the alternatives except Alternative C. The number of acres of either wilderness or WSAs within the Planning Area would be nearly the same for all alternatives. Therefore, cultural resources would be affected to the same degree under all alternatives.

WSR designations, and especially their relationship to livestock grazing management, can indirectly affect cultural resources. Placing few restrictions on grazing in the river corridors would result in effects to cultural resources sites through trampling, trailing, and wallowing. Greater restrictions placed on widespread grazing in the river corridors can result in concentrated livestock use at river crossings and water gaps. Total exclusion of grazing in the river corridor can focus livestock grazing impacts on lightly-used upland areas, resulting in increased effects on cultural sites in the uplands. However, as a general rule, sites with the highest significance tend to occur within the river corridors and near other water sources and not in the uplands. As a consequence, increased restrictions or exclusion of grazing in the WSR corridors would affect cultural resources.

All Alternatives other than Alternative C recommend no additional eligible rivers as suitable for potential designation by Congress as WSRs. Therefore, Alternative C would affect cultural resources to the greatest degree because eligible and suitable river corridors would continue to be managed under more restrictive interim guidance.

The Riddle Brothers Ranch National Historic District would be located on a “wild” section of the Donner und Blitzen WSR. This designation would be recommended to be changed to scenic under Alternative D, and recreational under Alternative E. A scenic classification would be in less conflict with the Riddle Brothers Ranch Cultural Resource Management Plan and would allow for improvement of the access road, as well as construction of one or two visitor parking lots. A recreational classification would allow even greater flexibility for development of visitor amenities such as toilet facilities.

4.9.4 Summary of Effects

With the exception of wildland fire suppression, forest/woodland management, and access management, Alternative B would result in the fewest indirect effects to cultural resources of all the alternatives. With extremely limited suppression efforts and few allowances for prescribed fire, no provision would be made for locating or protecting sites that could sustain damage. Further, fuels reduction would be wholly relegated to natural forces, resulting in more intense fires of longer duration. This type of fire would be known to damage surface archaeological sites. Under this alternative, increased erosion and ground visibility in unmanaged juniper woodlands would result in increased effects to archaeological sites in these areas.

Alternative E would be the least restrictive of all the alternatives and would result in the greatest level of indirect effects on cultural resources. An analysis of the remaining alternatives shows that the next lower level of indirect effects would occur under Alternative A, followed in order by Alternatives D and C. This evaluation would be based on the increased emphasis on natural values and decreased commodity use.

4.9.5 Cumulative Effects

Since most cultural resources would be location-specific, fragile, and nonrenewable, effects would be by nature cumulative. A cultural site can be subjected to grazing pressure, OHV use and illegal collecting. Each instance of degradation reduces the capacity for that site to answer questions about prehistory or history, and eventually the site may be totally destroyed in terms of information potential.

The issue of livestock grazing in riparian corridors recurs repeatedly within different, although related, resources. Water resources, fish and wildlife and their respective habitats, rangeland/grazing use, and WSR management all focus either partially or fully on riparian corridor management. As mentioned above, restricting or excluding livestock grazing in these areas benefits cultural resources because many of the most significant archaeological sites occur near riparian areas. Also mentioned was the potential to increase effects to cultural resources in upland areas when grazing in the riparian areas would be restricted or discontinued. This increase in effects would likely to be widespread and to go unnoticed even if all other resource objectives were being met. Effects that were unnoticed would not be mitigated.

Cultural resources fare best when the uses of public lands would be restricted to those that cause the least ground disturbance.

4.10 Native American Traditional Practices

4.10.1 Goals and Objectives

Goal 1- Protect traditional sites, land forms, burial sites, resources, and other areas of interest in consultation with the Burns Paiute Tribe and other tribes.

Objective 1. Monitor and protect known Burns Paiute Tribal and other tribal interest areas.

Objective 2. Integrate maintenance and protection of native subsistence species into vegetation management activities.

4.10.2 Assumptions

Native American Traditional Practices would be generally tied to a particular natural resource or geographic location within the Planning Area. There may be many locations within the Planning Area where the Burns Paiute or other American Indian people have interests. The BLM would work with the Burns Paiute and other American Indian people to identify important places and protect them.

4.10.3 Analysis of Alternatives

Direct Effects

4.10.3.1 Alternative A

Under Alternative A, the BLM would continue active consultation/coordination with the Burns Paiute Tribe and other tribes to identify traditional practice areas in the Planning Area. Traditional Cultural Properties would be nominated or found eligible for inclusion in the National Register of Historic Places and known burial sites would be monitored and protected. Plants of cultural, traditional and economic importance would be inventoried in cultural and botanical inventories. The Burns Paiute Tribe and other tribes would be consulted on vegetative management projects in order to identify and protect plant gathering locations.

4.10.3.2 Alternative B

This alternative would be the same as Alternative A except the amount of active consultation/coordination and inventory could decrease because of decreased commodity use.

4.10.3.3 Alternative C

This alternative would be the same as Alternative A.

4.10.3.4 Alternative D

This alternative would be the same as Alternative A.

4.10.3.5 Alternative E

This would be the same as Alternative A except the amount of active consultation/coordination and inventory would increase because of increased commodity use.

4.10.3.5.1 Indirect Effects Common to All Alternatives

All Alternatives

The management of the following resources or uses could indirectly affect Native American Traditional Practices. All indirectly could affect cultural resources under all alternatives. Effects vary in magnitude across the alternatives.

Water Resources, Riparian Vegetation, Fish and Special Status Fish Species. Water resources, riparian/wetlands, fish habitat and special status aquatic species, and Native American Traditional Practices areas would often be found in the landscape in the same location. Any management action that enhances or protects water quality would likely result in preservation, or at least decreased degradation, of Native American Traditional Practice areas. Of importance would be the necessity to include Native American Traditional Practice areas within physical barriers to protect them from livestock when designing water developments. One potential indirect effect caused by increased protection of riparian or wetland areas through physical barriers or decreased use would be the commensurate increased use in the uplands. American Indians use traditional plants in upland areas that may have previously received little or no livestock use. These areas could be subjected to livestock trampling and trailing effects in certain locations under a more upland-focused grazing system.

Cultural Resources. Cultural resource management in the form of surface and subsurface testing and excavation would affect Native American Traditional Practices use areas, especially historic/prehistoric camps. These effects would range from surface collection of cultural material to backhoe trenches up to four meters deep and 20 meters long. Consultation with the Burns Paiute Tribe and other tribes would be undertaken prior to implementation of any of these activities.

Cultural resource management would be the most active and produce the most ground disturbing effects on Native American Traditional Practices sites and use areas under Alternative E. Cultural resources management under

Alternatives A, C, and D would be moderately active and show a commensurate decrease in effects on Native American Traditional Practices and use areas. Alternative B would see the cultural resources management program limited primarily to salvage operations where cultural material and information would be lost without action. Under Alternative B, cultural resources management would affect Native American Traditional Practices and use areas the least.

Management actions under Alternatives A, C, and D would generally provide similar levels of protection to Native American Traditional Practices areas because livestock grazing intensity would be approximately the same in these three alternatives. Water resources and related projects in these three alternatives could indirectly affect Native American Traditional Practices use areas in upland areas, since grazing would be increasingly forced into those areas. Alternative B would eliminate livestock grazing everywhere in the Planning Area except a portion of the CMPA. The areas still grazed in the CMPA would be open for water resources projects and these would likely indirectly protect Native American Traditional Practices sites. With grazing eliminated elsewhere, water resources and related projects would not be necessary except where rehabilitation or restoration of stream system(s) would be warranted. These projects in the No Livestock Grazing portions of the Planning Area would not indirectly protect or degrade Native American Traditional Practices areas. Alternative E would probably have the most active water resources management because of the focus on commodity extraction. This alternative would likely result in the greatest effects on Native American Traditional Practices areas, particularly in upland areas when the riparian areas would be closed to livestock and wild horse grazing.

Rangeland Vegetation, Noxious Weeds, Wildlife Habitat, and Terrestrial Special Status Species. Rangeland vegetation, noxious weeds, wildlife habitat, and terrestrial special status species habitat management projects would be focused on plant community manipulation to reach various objectives. Most vegetation management projects, if located where important Native American traditional plants were found, would affect Native American Traditional Practices and use areas because the traditionally, and possibly economically, important plants would be replaced by another target species or plant community. Of additional concern would be noxious weed chemical treatments in traditional plant gathering areas. Care must be taken to communicate with plant gatherers to make them aware of treatment area locations.

Vegetation management projects under Alternatives C, D, and E would probably result in the most acres of altered plant communities and provide the greatest effect on Native American Traditional Practices and use areas. Alternative B would result in the least number of acres converted and provide the greatest protection for Native American Traditional Practices and use areas. Vegetation management projects under Alternative A would be less numerous than Alternatives C, D, and E, but more than in Alternative B.

Woodlands. Juniper woodland treatments could result in effects to Native American Traditional Practices areas, particularly adjacent to root gathering areas. Affected would be prehistoric/historic root campsites and prehistoric/historic religious sites. "Drop and burn" fuels disposal in root beds could result in effects on traditionally collected plants unless slash would be disposed of during the cooler part of the year in late fall, winter, or early spring.

Juniper woodland management would be the most active under Alternatives A, C, D, and E. The greatest effects would be seen under Alternative E, primarily if juniper becomes a commodity. Juniper woodland management under Alternative B would be limited because Alternative B relies on natural processes to "manage" these woodlands. Alternative B would produce the least effect to Native American Traditional Practices areas.

Social and Economic Values. Current socioeconomic values would be focused primarily on consumptive use with the trend toward increasing emphasis on nonconsumptive uses. Many aspects of Native American Traditional Practice would be related to gathering traditional food and medicine plants. Effects upon Native American Traditional Practice areas would be greater with consumptive than nonconsumptive use because consumptive use in rangelands usually involves ground disturbance and vegetation community changes.

Native American Traditional Practices (especially root and other plant gathering) can be considered consumptive and could be in competition with other consumptive uses or active management strategies, particularly under Alternative E. Alternatives A, C, and D would affect Native American Traditional Practices at a much lower level than Alternative E. Alternative B, the least consumptive of the alternatives, would most likely result in the fewest effects on Native American Traditional Practices areas.

Minerals and Energy. In general, the fewer restrictions on the exploration and extraction of energy and mineral resources, the greater the effect to Native American Traditional Practices areas because energy and mineral resource consumption usually involves intensive ground disturbance and destruction of existing vegetation communities.

Minerals management under Alternative E would be the least restrictive and affect Native American Traditional Practices to the greatest degree. Alternative A would be the next least restrictive, with Alternatives C and D offering much greater restrictions. Minerals management under Alternative B would be the most restrictive and would affect Native American Traditional Practices and use areas the least.

Lands and Realty. Lands and reality management can affect Native American Traditional Practices areas, most significantly in land exchanges and land sales where traditionally used areas could be lost. Restrictions or elimination of utility corridors would reduce effects on Native American Traditional Practices areas, particularly root gathering or medicinal plant gathering sites. The greater the restrictions and the fewer the utility corridors, the fewer effects on Native American Traditional Practices areas. Existing land tenure management emphasis would be increasingly focused on acquiring high value lands and management easements, while utility development would be relatively static. Acquiring high value Native American Traditional Practices areas and meeting Native American Traditional Practices management objectives would be a real possibility under existing management, but would be improved under Alternatives B, C, and D.

Wild Horse and Burro. Native American Traditional Practices areas would be affected by wild horse use in a manner similar to livestock grazing. Currently, these effects would be mitigated on a case-by-case basis when discovered. Construction of more water developments to provide more even use of the landscape and to provide for water during drought years could affect Native American Traditional Practices areas. One potential effect caused by increased protection of riparian or wetland areas through physical barriers or decreased use would be the commensurate increased use of the uplands. Native American Traditional Practices areas in upland areas that receive little or no wild horse use could be subjected to trampling and trailing effects in certain locations under a more upland focused livestock grazing system.

Wild horse use would be approximately the same under all the alternatives because horse numbers would be managed at similar levels. Effects on Native American Traditional Practices areas from wild horses would, therefore, be the same under all alternatives.

Grazing Management. Native American Traditional Practices areas, particularly edible root and medicinal plant gathering areas, would be affected by livestock grazing. These effects would be trampling, wallowing, and trailing, especially near fenced or unfenced watering areas. Currently, these effects would be mitigated on a case-by-case basis when discovered. In some cases, grazing projects can take pressure off of Native American Traditional Practices areas and distribute livestock use over a wider area. In other cases, the projects can result in increased effects on gathering areas in new locations. In general, the more livestock grazing would be restricted, the fewer effects on Native American Traditional Practices areas.

Livestock grazing would be limited to a portion of the CMPA under Alternative B. This alternative would decrease livestock grazing effects on Native American Traditional Practice areas. Alternatives A, C, and D would allow more livestock grazing than Alternative B and the resultant effects would be greater. Alternative E, maximum commodity production, would result in the most effects on Native American Traditional Practice areas.

Fire Management. Wildland fire and wildland fire suppression affect Native American Traditional Practices areas in various ways. Suppression activities such as OHV use, bulldozing control lines, and occupation of fire camps can damage Native American Traditional Practices areas through sediment compaction and altering surface water drainage. Wildfire removes ground cover and exposes rock and soil to erosion, subjecting traditional use prehistoric/historic campsites to damage from wind and water erosion and illegal collecting.

Wildfire suppression would be most active under Alternatives A, C, D, and E. Effects on Native American Traditional Practices areas from wildland fire and suppression would be similar under these alternatives. Under Alternative B, wildland fire suppression would be limited and fires would be allowed to burn larger areas than under any of the other alternatives. This emphasis on naturalness would not affect most Native American Traditional Practices areas to a greater extent than any of the other alternatives. However, fire effects on historic/prehistoric campsites would be heightened

under Alternative B. Greater burned acreage would mean greater exposure of surface sediments to erosion, subjecting campsites to damage from wind and water erosion and illegal artifact collecting.

Prescribed burning can affect burnable components (such as camp trees and kitchen structures) of Native American Traditional Practices campsites. If heat is high enough and duration long enough, prescribed fire can affect the surface prehistoric/historic component of these campsites by causing artifact shatter and damage to hydration rinds on obsidian artifacts. Prescribed fire can affect the archaeological component of these sites by increasing short-term ground surface visibility. This greater visibility makes artifacts more accessible and can lead to increased illegal artifact collection. These short-term effects would be mitigated through prior cultural inventory, systematic surface artifact collection and/or post-fire monitoring. After a few seasons of plant growth, ground cover decreases ground visibility. Decreased visibility can affect these campsites through decreased potential for illegal collecting. Prescribed fire management actions would usually be planned to target a certain plant species or plant association, while preserving other portions of the plant community. Under this prescription, Native American Traditional Practices areas such as root plant populations would not be substantially affected. However, if the burn plan calls for extreme heat generation to eliminate a target plant species that would be difficult to remove, Native American Traditional Practices areas could be affected. Nonetheless, most important Native American traditionally used plants would be located in rocky, fire resistant plant communities. These lithosols would commonly be used as fire breaks in fire control efforts. Even more important would be that many of these species such as biscuit root(s), bitterroot, and Indian carrot would be dormant before the height of the fire season or prescribed burning season in the fall and would not be affected except where ground fuels were thick enough to allow the fire to cook the soil.

Prescribed burning would be most active under Alternatives A, C, D, and E. Effects on Native American Traditional Practices areas from prescribed fire would be at similar levels under these alternatives. Prescribed burning could be limited under Alternative B. Thus, Native American Traditional Practices areas would be less affected by short-term ground surface visibility, exposure of surface rock and soil to wind and water erosion, and destruction or damage of artifacts at historic/prehistoric campsites.

Transportation and Roads. Roads allow access to Native American Traditional Practices areas. Closing roads as part of a road management plan can effect Native American Traditional Practices because traditional access may be cut off. Opening new roads could effect traditional practices by improving access for root/medicinal/other plant gathering, religious worship, and maintaining ties to traditional camps. Open access to Native American Traditional Practices areas affords the BLM an opportunity to monitor plant use and prehistoric/historic camps.

Active road closures would be most likely under Alternatives C and D. Alternative B, which relies on natural processes and restricts most commodity use, would probably result in fewer open road miles than Alternatives C and D. Alternative E would likely see increased road miles to benefit commodity access and would allow greater access to Native American Traditional Practices areas than the remaining alternatives. With the Steens Act in place, access under Alternative A has been reduced with the designation of the Steens MountainWilderness. Nonetheless, Alternative A would produce the least effect to road access of Alternatives A, B, C, and D.

Off-Highway Vehicles. OHV and mechanized vehicle use affects Native American Traditional Practices areas by compacting sediments, altering surface water drainage, increasing erosion, and crushing economically important plants. Additionally, these effects could be seen in historic/prehistoric camps and sacred places where OHVs and mechanized vehicles would be allowed. Organized OHV and mechanized vehicle event locations can be cleared and any effects mitigated through adherence to the National Historic Preservation Act, but the effects caused by dispersed OHV and mechanized vehicle activity would not be mitigated unless they were discovered. Under Alternative A, the majority of the Planning Area would be designated as open to OHV and mechanized vehicle travel, affecting Native American Traditional Practices areas. Alternative E would be the least restrictive of all the alternatives in terms of OHV policy and would result in the greatest effects to Native American Traditional Practices areas. Low to moderate levels of damage to Native American Traditional Practices areas would be incurred under existing management and would decrease under Alternatives B, C, and D.

Recreation. Recreation development and use can affect Native American Traditional Practices areas. Greater use of interpretive developments can increase public awareness and education, resulting in decreased vandalism of traditional campsites. However, increased development and general use brings more people to the area. Increased visitor use could damage existing camps, disturb people gathering traditional plant and animal resources, and disturb people involved in

other Native American spiritual or religious activities. It has been noted in locations outside of Andrews Resource Area that Indian people would abandon a traditionally used area when competing uses create a situation where the Indian people could not practice their traditions without coming into contact with non-Indians. When comparing the effects of dispersed recreation with developed recreation, developed recreation may be preferred because it can specify the locations that would be used. A focus on dispersed recreation directs users into undeveloped areas and away from developed sites. For this reason, it would be likely that dispersed recreation would effect Native American Traditional Practices and practice areas more than developed recreation.

Recreation under Alternative B would focus on dispersed use. The same would be true to lesser degree for Alternatives C, D, and A. Under Alternative E, developed recreation would be maximized. Dispersed recreation would probably increase as well, thus affecting Native American Traditional Practices and use areas to a greater degree than other alternatives.

Areas of Critical Environmental Concern, Wilderness, WSAs and WSRs. ACEC, wilderness, WSAs, and WSR designations, with their greater emphasis on natural values, would be a benefit to Native American Traditional Practices areas because they restrict the amount of human-caused ground disturbing activity. However, wilderness, WSA, and WSR designations can affect access to Native American Traditional Practices and use areas due to road closures within these areas.

Alternative A, with the second largest acreage devoted to ACECs, would result in fewer effects to Native American Traditional Practices areas than all the alternatives except Alternative C. Under Alternatives B and E, ACEC acreage would be nearly zero and would have the least effect on Native American Traditional Practices and use areas. Alternative D would designate ACEC acreage at a level between Alternative A and C, and thus have a moderate affect on Native American Traditional Practices and use areas. Acres of wilderness and WSA designation would be essentially the same for all alternatives and would equally affect Native American Traditional Practices and use areas. All Alternatives except Alternative C recommend no eligible rivers as suitable for potential designation as WSRs by Congress. Therefore, Alternative C would have the greatest effect on Native American Traditional Practices areas because eligible and suitable river corridors would continue to be managed under more restrictive interim guidance.

4.10.4 Summary of Effects

With the exception of potential road closures and increased dispersed recreation use, Alternative B would result in the fewest cumulative effects on Native American Traditional Practices and use areas of all the alternatives. Economic, social, and spiritual needs of the Native American community could be thwarted through widespread road closures under Alternative B and to a lesser extent under Alternatives C and D. Increased dispersed recreation use may bring outside visitors into contact with Native American traditional users. While this contact could be instructive, particularly for the recreation user, increased contacts might encourage traditional users to abandon areas that have been used for thousands of years. Much of Native American traditional use would be intertwined so that root gathering, though seen as economic, would be a blend of economic, social, and spiritual activity. Disturbing this activity inhibits the ongoing heritage of the Burns Paiute and other tribes. Alternative B, though not perfect, would result in the fewest effects on the practice and continuation of Native American heritage in the Planning Area.

Alternative E would be the least restrictive of all the alternatives and would result in the greatest number of effects on Native American Traditional Practices and use areas. An analysis of the remaining alternatives shows that fewer effects would occur under Alternative A, followed in order by Alternatives D and C. This would be based on the increased emphasis on natural values and decreased commodity use.

4.10.5 Cumulative Effects

Since most Native American Traditional Practices use areas would be in specific and fragile locations, effects would be, by nature, cumulative. Native American Traditional Practices use areas can be subjected to grazing pressure, OHV use and disturbance from dispersed recreation users. Each instance of degradation reduces the capacity for that use area to meet traditional economic, social and/or spiritual needs of Native American people and the potential exists for specific areas to be abandoned if cumulative effects reach threshold levels.

A recurring issue, seen repeatedly within different, though related, resources, would be the issue of livestock grazing management, particularly in riparian corridors. Water resources, fish and wildlife and their respective habitats, rangeland/grazing use, and WSR management all focus either partially or fully on riparian corridor management. As mentioned above, restricting or excluding livestock grazing in these areas benefits Native American Traditional Practices use areas because many of these uses occur in or near riparian areas. Also mentioned was the potential to increase effects to Native American Traditional Practices use areas, particularly root gathering areas in the uplands, when grazing the riparian areas would be restricted or discontinued. This increase in effects to traditional use areas would be widespread and would likely go unnoticed even if all other resource objectives were being met. Effects that were not noticed could not be mitigated.

4.11 Visual Resources

4.11.1 Goals and Objective

Goal - Manage public land actions and activities in a manner consistent with VRM class objectives.

Objective 1. Protect, maintain, improve, or restore visual resource values by managing all public lands in accordance with the VRM system.

4.11.2 Assumptions

The FLPMA requires that public lands be managed to protect the quality of scenic values and, where appropriate, to preserve and protect certain public land in its natural condition. VRM inventory classes (I, II, III, and IV) would be determined on the basis of the landscape's scenic qualities, public sensitivity toward the landscapes, and the visibility of the landscape from travel routes or observation points. Inventory classes would be informational in nature and provide the basis for considering visual values in the RMP process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities. VRM Classes (I, II, III, and IV) would be designated through the land use planning process, and the assignment of VRM classes would be based on the management decisions made in RMPs. However, visual values must be considered throughout the RMP process. All actions proposed during the RMP process must consider the importance of the visual values and the effects the project may have on these values. Management decisions in the RMP should reflect the value of visual resources and may be the driving force for some management decisions. For example, highly scenic areas that need special management attention may be designated as scenic ACECs and as VRM Class I based on the importance of the visual values. All of the alternatives take into consideration the determination of VRM classes, except where a VRM Class I has been assigned to areas such as wilderness, the wild sections of WSRs, and other congressional and administrative designations. The Steens Mountain Wilderness, all wild WSRs, and all WSAs would be designated as VRM Class I.

4.11.3 nalysis of Alternatives

4.11.3.1 Effects Common to All Alternatives

Direct Effects

Designation of the Steens Mountain Wilderness, all wild WSRs, and all WSAs as VRM Class I would protect the existing scenic values and preserve the existing landscapes.

Indirect Effects

Recreation. The siting and design of recreation developments, facilities, and projects could affect visual resources through the introduction of forms, lines, colors, and textures that contrast with the characteristic landscape. However, these developments, facilities, and projects would be planned to minimize any potential contrasts and to meet the VRM objectives of the area. Dispersed recreation activities could strengthen existing line, form, and color contrasts through the use of existing roads, trails, and camp sites. Closure and/or rehabilitation of undeveloped sites would restore the visual resources of specific sites.

4.11.3.2 Alternative A

Direct Effects

Planning Area
Maintaining the existing VRM classes would allow a variety of management actions that could or would affect existing visual resources, depending on the VRM class. Moderate and major landscape modifications would be allowed in some areas. Designation of the Steens Mountain ACEC as VRM Class I would preserve and protect the visual resources of the ACEC that would not be in the Steens Mountain Wilderness, a wild WSR or a WSA.

Indirect Effects

Planning Unit
Riparian and Wetlands. Improvements to riparian vegetation, including increased vegetative density, structure, and cover could occur at specific locations with a proportional effect to visual resources, particularly in the vicinity of WSRs. The ecological status of terrestrial native plant communities would be maintained or improved. Plant density and coverage would be maintained or increased in these communities and could affect visual resources by creating changes in color or texture.

Woodlands. Late-seral stage ecological characteristics of old growth western juniper woodlands would be maintained by mechanical removal of younger trees. The effects to visual resources would depend upon the amount of juniper removed and whether the removal would be accomplished by mechanical means or by prescribed fire. The effects to visual resources would vary depending on the VRM class of the area.

Noxious Weeds. The current integrated management of weeds would continue. Control on disturbed areas would be emphasized, as would inventories of new infestations. Noxious weeds could affect visual resources by replacing native vegetation and creating changes in form, color, or texture.

Grazing Management. Whenever existing grazing management practices on public lands would be determined to be contributing to nonattainment of resource objectives, appropriate actions would be implemented. Changes in management may be implemented that would result in increased riparian and upland vegetation density and structure, consequently reducing erosion, increasing streambank stability, and increasing shade, and thereby affecting visual resources through changes primarily in color and texture. Range improvements could affect visual resources through the addition of forms, lines, colors, and textures that would not be found in the surrounding landscape.

Energy and Minerals. Management actions relating to the extraction of mineral materials; oil and gas and geothermal exploration; renewable energy development; and the development and production of locatable minerals would affect the natural character of the landscape. The greatest amount of public land would be available for energy and minerals exploration and development; however, the potential for large-scale development relating to mining would be considered to be low. Existing laws, regulations, and policies would minimize the effects from energy and mineral activities to visual resources through mitigation. Effects could also be reduced by utilizing VRM class objectives to provide the basis for allowable changes in form, line, color, and texture.

Wildland Fire Management. All wildland fires would be suppressed. Although fire suppression could have short-term effects to visual resources, in the long term, larger, hotter fires could occur that could cause greater effects to visual resources because of the amount of the greater acreage burned and resulting changes to t spatial arrangements, colors, patterns, and vegetation mosaics. Other specific long-term actions that could affect visual resources would be addition of linear features from fire line construction and vehicles driving cross-country.

Lands and Realty. The management actions associated with authorizations of new ROWs, utilities, and permits for large-scale powerlines, fiberoptic cables, and pipelines would be conducted consistent with existing land use planning, regulation, and law. ROWs would be located within designated corridors on a case-by-case basis. Siting additional disturbances within previously disturbed sites, such as designated powerline corridors, could reduce effects to visual resources. Lands and realty actions generally add vertical lines and linear and complex forms to the landscape.

Transportation and Roads. The potential effects of the operation and maintenance of roads to visual resources, would vary depending on the location and the VRM class of the area.

Off-Highway Vehicles. OHVs would continue to be managed in accordance with the existing open, limited, and closed OHV designations. In the CMPA, the Steens Mountain Wilderness would be closed to OHV use. In the AMU and CMPA, OHV use would be limited to designated roads, ways, and trails in WSAs. OHV activities can affect to visual resources if these uses cause vegetation loss, soil exposure, or erosion. Visual resources could be most affected in those areas designated as open (675, 918 acres in the Planning Area) because cross-country travel can add different colored, linear forms that contrast with the forms and colors of the characteristic landscape. OHV and mechanized vehicle use on designated or existing roads, ways, and trails could increase color contrasts between the travel surface and the surrounding vegetation through continued vegetation loss and soil erosion.

4.11.3.3 Alternative B

Direct Effects

Planning Unit
Designation of almost half of the Planning Area as VRM Class II would retain the existing character of the landscapes and would allow natural process to change the landscapes. Over time, landscapes would appear more natural as the signs of management activities become less obvious. Management actions for the protection of other resources would be allowed if VRM Class II objectives would be met. Moderate and major landscape modifications would not be allowed.

Indirect Effects

Riparian and Wetlands. The management goals and objectives for riparian habitat and wetlands would produce the same effects as described in Alternative A.

Woodlands. Fuel treatments would not occur. Old growth western juniper woodlands would be allowed to burn. Short-term effects could include larger black areas; however, a long-term effect would be the replacement of woodlands by shrubs, grasses, and undesirable species, thus changing all visual elements of the landscape.

Noxious Weeds. The management goals and objectives for noxious weeds would produce effects to visual resources the same as those described in Alternative A; however, the potential for weed invasion might also be greater because fewer control methods would be proposed. With the elimination of vegetative treatments, visual resources could be affected through decreased control of noxious weeds, which would allow for increased weed invasion in some areas, affecting the color and texture of many landscapes.

Grazing Management. No livestock grazing would be authorized in the AMU. Livestock grazing would occur in the CMPA consistent with the Steens Act, but administrative solutions would be emphasized,, thereby reducing the need for rangeland projects and the introduction of new forms, lines, colors, and textures into the landscape. Removal of nonfunctional projects would enhance visual resources through the removal of improvements or structures that may contrast with the landscape.

Energy and Minerals. Commodity uses such as mining, grazing, and other resource consumptive uses would not be allowed and the potential for effects to visual resources would be reduced.

Wildland Fire Management. Effects to visual resources relating to initial attack and fire suppression would be increased because a minimal level of time or resources would be used for these actions. Wildland fires that threaten property, human life, or significant resources would be suppressed. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions. In dry years, large wildland fires could change the landscape from sagebrush steppe to annual grassland, thereby affecting visual resources. If increased fire cycles lead to permanent establishment of grassland, the effects to visual resources would be high.

Lands and Realty. This alternative would recommend withdrawal of the entire Planning Area from public lands laws, including the mining laws. All public lands would be retained and public holdings would be increased. The entire

Planning Area would be considered a ROW and realty use exclusion area. This management action would eliminate any potential effects to visual resources from such activities as described in Alternative A.

Transportation and Roads. Only roads required by law would be constructed and road maintenance would decrease. Road closures would be the most extensive and effects to visual resources would be minimal.

Off-Highway Vehicles. With the Planning Area designated as either closed or limited designated roads and trails for OHV and mechanized vehicle use, the effects to visual resources would either be reduced from an overall reduction in use or increased from more concentrated use. Restricting OHV and mechanized vehicle use to a limited number of designated routes, with no reduction in use, would result in increased color contrasts between the travel surface and the surrounding vegetation through continued vegetation loss, soil exposure, and soil erosion. The visual contrasts associated with areas designated as open, as described in Alternative A, would not occur.

Planning Unit
Visual resources would be managed to protect natural values. Designation of the Steens Mountain ACEC as VRM Class I would preserve and protect the visual resources of the ACEC that would not be in the Steens Mountain Wilderness, a wild WSR or a WSA. Designation of the four parcels found to contain wilderness values as VRM Class II would protect the visual resources and naturalness of these parcels. Designating the rest of the Planning Area as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others. Major landscape modifications would not be allowed.

CMPA
Designating the WJMA as VRM Class III would allow the moderate landscape changes that would be needed to implement the purposes of the area. Designation of the remainder of the CMPA as VRM Class II would retain the existing landscape while allowing the implementation of small, non evident management changes.

AMU
Designating the AMU as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others.

4.11.3.4 Alternative C

Direct Effects

Planning Unit
Visual resources would be managed to protect natural values. Designation of the Steens Mountain ACEC as VRM Class I would preserve and protect the visual resources of the ACEC that would not be in the Steens Mountain Wilderness, a wild WSR or a WSA. Designation of the four parcels found to contain wilderness values as VRM Class II would protect the visual resources and naturalness of these parcels. Designating the rest of the Planning Area as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others. Major landscape modifications would not be allowed.

CMPA
Designating the WJMA as VRM Class III would allow the moderate landscape changes that would be needed to implement the purposes of the area. Designation of the remainder of the CMPA as VRM Class II would retain the existing landscape while allowing the implementation of small, nonevident management changes.

AMU
Designating the AMU as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others.

Indirect Effects

Riparian and Wetlands. This alternative would be similar to Alternative B; however, the rate of improvement in riparian/wetland areas and upland vegetation would be expected to increase because both active and passive measures would be used. Visual resources would be maintained or improved.

Woodlands. The overall effects relating to initial fire attack and suppression of wildland fires would be the same as Alternatives A and E. This alternative would allow removal of up to 90 percent of the post-settlement western juniper trees. Fires would be allowed to burn in old growth western juniper stands when there would be no threat to life or significant resource values. This level of treatment would cause a higher level of effects to visual resources.

Noxious Weeds. The effects of management actions for noxious weeds would be the same as those described for Alternative A.

Grazing Management. Protection of natural values would be emphasized in the AMU while providing for minimal sustainable livestock grazing that meets allotment management objectives. Grazing in the CMPA would be allowed consistent with the Steens Act, but natural resource objectives would be emphasized. These management actions would reduce effects to visual resources. Range improvements could affect visual resources through the addition of forms, lines, colors, and textures that would not be found in the surrounding landscape. Removal of nonfunctional projects would enhance visual resources through the removal of improvements or structures that may contrast with the landscape.

Energy and Minerals. The potential effects of energy and minerals to visual resources would be reduced, since ACECs and existing and potential BLM recreation sites have been withdrawn from various types of energy and mineral development. There would be less potential for effects to occur because consumptive uses would not be encouraged.

Wildland Fire Management. Effects to visual resources would be the same as Alternative B.

Lands and Realty. All ACECs, WSAs, WSRs, the Steens Mountain Wilderness, and the CMPA would be designated as ROW and realty use authorization exclusion areas. The feasibility of consolidating existing parallel ROW facilities would be evaluated. Federal agency requests for new withdrawals would be recommended for approval only if they would protect natural values. These management actions, along with others for Alternative C, would minimize visual effects.

Transportation and Roads. Transportation systems would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. To the extent that this results in road closures, seasonal closures, and other limitations, disturbance effects to visual resources would be minimized and would be more like those in Alternative B than under Alternative A.

Off-Highway Vehicles. With the Planning Area designated as either limited to designated roads, ways, and trails or closed for OHV and mechanized vehicle use, visual resources would not be affected. The visual contrasts associated with areas designated as open, as described in Alternative A, would not occur. OHV and mechanized vehicle use would be spread out through the Planning Area so the color contrasts associated the heavy use of a limited number of designated roads and trails, as described in Alternative B, would not occur.

4.11.3.5 Alternative D

Direct Effects

Planning Unit

Visual resources would be managed to improve natural values. Designating parts of the Planning Area as VRM Classes II and II would retain the existing landscape character in some areas, while allowing moderate changes in others. Major landscape modifications would be allowed in those areas designated as VRM Class IV.

CMPA

Designating lands within ½ mile of the Steens Mountain Loop Road in the WJMA as VRM Class III would allow moderate landscape changes. Designation of the remainder of the WJMA as VRM Class IV would allow major landscape modifications. Designating the remainder of the CMPA as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others.

AMU

Maintaining the existing VRM classes would allow a variety of management actions that could or would affect existing visual resources, depending on the VRM class. Moderate and major landscape modifications would be allowed in some areas.

Indirect Effects

Riparian and Wetlands. The effects to visual resources would be the same as Alternative C.

Woodlands. Although the management actions for woodlands would be different under Alternative D than under Alternatives A, B, and C, the effects to visual resources would be the same as described under those alternatives.

Noxious Weeds. The effects of management actions for noxious weeds would be the same as those described for Alternative A. However, additional actions would be more likely to affect visual resources than Alternatives A, B, and C. These actions include giving priority to high quality natural resource areas, and emphasizing prevention, restoration, research, and expanded efforts to inventory for and detect new infestations,

Grazing Management. Grazing management prescriptions in both the AMU and the CMPA would be developed to meet natural resource objectives. Range improvements could affect visual resources through the addition of forms, lines, colors, and textures that would not be found in the surrounding landscape.

Energy and Minerals. Effects to visual resources would be reduced with respect to Alternatives A or E, but would increase with respect to Alternatives B and C.

Wildland Fire Management. Effects to visual resources would be the same as Alternative C.

Lands and Realty. The acquisition of land with high public resource values would be emphasized. All large scale facilities would be encouraged to locate in the designated corridors. Failure to do so would increase effects to visual resources. WSRs and the Steens Mountain Wilderness would be designated as ROW and realty use authorization exclusion areas. All WSAs and ACECs would be designated as ROW and realty use authorization avoidance areas. New withdrawals and modifications would be considered on a case-by-case basis.

Transportation and Roads. For existing transportation and roads management, this alternative would result in management that meets resource goals and objectives, but strikes a balance between cultural, economic, ecological and social values.

Off-Highway Vehicles. With most of the Planning Area designated as closed or as limited to existing or designated roads, ways, and trails for OHV and mechanized vehicle use, visual resources could be affected. The visual contrasts associated with an area being designated as open, as described in Alternative A, would not occur because the only area designated as open would be a dry lake bed. OHV and mechanized vehicle use would be spread out through the Planning Area so the color contrasts associated the heavy use of a limited number of designated roads and trails, as described in Alternative B, would not occur. Cooperative management of OHVs and mechanized vehicles could benefit visual resources through the education of users and increased compliance with the OHV and mechanized vehicle designations.

4.11.3.6 Alternative E

Direct Effects

Planning Unit
A variety of management actions that could or would affect existing visual resources, depending on the VRM class, would be allowed. Moderate and major landscape modifications would be allowed in some areas.

CMPA
Designation of the WJMA as VRM Class IV would allow major modification of that landscape. Retaining the existing VRM classes in the remainder of the CMPA would allow a variety of management actions that could or would affect existing visual resources, depending on the VRM class. Moderate and major landscape modifications would be allowed in some areas.

AMU
Keeping the VRM Class II areas in the Trout Creek Mountains and around Denio Creek would retain the existing landscape character in these areas. Management actions for the protection of other resources would be allowed if VRM Class II objectives would be met. Designating the majority of the AMU as VRM Class IV would allow a variety of management actions that would affect visual resources. Major landscape modifications would be allowed in VRM Class IV areas.

Indirect Effects

Riparian and Wetlands. The effects to visual resources would be the same as Alternative A.

Woodlands. The effects to visual resources would be the same as Alternative A.

Noxious Weeds. The effects of noxious weed treatments would be the same as Alternative D.

Grazing Management. Livestock grazing opportunities would be maximized under this alternative. Range improvements would affect visual resources through the addition of forms, lines, colors, and textures that would not be found in the surrounding landscapes.

Energy and Minerals. Effects to visual resources from management actions relating to the extraction of mineral materials, oil and gas and geothermal exploration, and development and production of locatable minerals would have a slightly higher potential to change the natural character of the landscape than under Alternatives A, B, C, or D because these consumptive actions would be encouraged.

Wildland Fire Management. All wildland fires would be suppressed using appropriate management actions. The effects to visual resources would be same as Alternative A.

Lands and Realty. Acquisition of land with high commodity values would be emphasized over lands with high natural resource values. In the long term, effects to visual resources would increase if commodity uses increase. The overall effects to visual resources would be greater than Alternatives A, B, C, or D. WSRs and the Steens Mountain Wilderness would be designated as ROW and realty use authorization exclusion areas. All WSAs and ACECs would be designated as ROW and realty use authorization avoidance areas.

Transportation and Roads. Transportation and roads would be managed for the benefit of commodity production. Road closures would be the least extensive and maintenance requirements would be higher. New road development would be encouraged.

Off-Highway Vehicles. With the majority of the Planning Area designated as open or as limited to existing or designated roads, ways, and trails for OHV and mechanized vehicle use, visual resources could be affected. The visual contrasts associated with an area being designated as open, as described in Alternative A, would occur because most of the Planning Area would be designated as open to OHV and mechanized vehicle use. OHV and mechanized vehicle use on existing and designated roads, ways, and trails would be spread out through the Planning Area so the color contrasts associated the heavy use of a limited number of designated roads and trails, as described in Alternative B, would not occur.

4.11.4 Summary of Effects

The management goals for visual resources, which would be to manage public land actions and activities consistent with VRM objectives, could be met for all alternatives. Potential effects could occur under all alternatives, on a site-specific basis, from activities such as proposed development, grazing, woodland treatments, OHV and mechanized vehicle uses, mining, recreation, and fire suppression. However, by following BMPs and mitigations for specific projects, the degree or level of effects to visual resources would be minimized.

The greatest protection for visual resources would occur under Alternative B. Alternative E is the commodity driven alternative and would have the greatest potential for effects to visual resources. Alternatives C and D would be similar

in terms of the potential for effects to visual resources. However, Alternatives C and D would provide a greater level of protection for visual resources than Alternatives A and B.

4.11.5 Cumulative Effects

The western United States continues to experience increases in population growth with a corresponding increase in the potential for proposed development, consumptive uses, recreation activities (motorized and nonmotorized), and the continuation of existing uses such as grazing. Any increase in traffic or additional use of resources that would affect line, form, color, or texture of a given area could have a cumulative effect to visual resources.

4.12 Social and Economic Values

4.12.1 Goals and Objectives

Goal 1 - Manage public lands to provide social and economic benefits to local residents, businesses, visitors, and future generations.

Objective 1. Work cooperatively with private and community groups and local government, the Burns Paiute Tribe, and other tribal governments to provide for customary uses consistent with other resource objectives and to sustain or improve local economies.

Objective 2. Maintain and promote the cultural, economic, ecological, and social health of the Steens Mountain area.

4.12.2 Assumptions

Social and economic values, as well as natural resource protection and commodity production from public lands must, at minimum, meet the mandates of management policy and law such as the FLPMA, the Wilderness Act, the WSA IMP and the Steens Act.

The federal government collects revenues when commodities would be used. Commodity use on public lands generates revenues for the federal government and private economic activity in the local, regional, national, and in some cases international economies. Business activities of federal agencies also generate economic activity in the local, regional, and national economies both as an employer and as a purchaser of goods and services.

Public lands provide or contribute to numerous environmental amenities, such as clean water, scenic quality, and recreational opportunities. These amenities enhance local communities and tourism. Recreational use of public lands generates local economic activity through purchases of food, fuel, lodging, and other goods and services from local businesses.

Public lands also contribute financially to local governments through provisions to share commodity collections with local governments and through PILT, which compensates counties for loss of local property tax due to exemption of public lands from property taxes.

4.12.3 Analysis of Alternatives

Social and economic values would be affected by the management actions specific to this resource as well as the management activities of a number of other resources/uses. The management actions outlined for the resources/usesdiscussed below would not all have implications on social and economic values. General effects have been summarized in this introduction, whereas specific effects are discussed under each alternative in the following sections.

4.12.3.1 Effects Common to All Alternatives

Water resources, wildlife, vegetation, and special status species management all affect social and economic values through the level (passive/active) and type (natural, low use versus active, high use) of management. Active, high use

management requires more funding, equipment, and labor than management based on natural processes and emphasizing low use. However, active, high use management may yield greater revenues for the BLM and the local economy. Management and use levels increase for all of these resources from Alternative B through Alternative E. The effects to social and economic values from increasing the management and use of these resources would be increased management costs, increased contracting/employment and increased revenues from the commodity and recreational use of these resources. Effects to the natural and intrinsic (inherent, nonmarket) values would also increase from Alternative B through Alternative E, and may lead to a decrease in specific recreation uses, thus precluding some of the expected increases in overall use and revenues. The Wild Horse and Burro program has a limited effect on the local economy since the adoption fees go to the national program, and the contractors used would be from out of the area. However, the rare horse breeds and adoption activities do attract visitors and attention to the area and lead to spending locally that would not otherwise occur.

4.12.3.2 Alternative A

Direct Effects

Under this alternative, contracts for services and sale of products would continue to be available to local residents as need and conditions permit. Public and private partnerships to achieve shared economic objectives would also continue.

Indirect Effects

Under this alternative, commodity use would continue at existing levels. Natural resources and facilities would be managed as outlined in existing land use plans and the Steens Act. No new or additional effects would result from this alternative.

Current management practices would continue for all resources and uses under Alternative A; therefore, no new or additional indirect effects should result. Employment, livestock grazing, fire, lands and realty, transportation, OHV, mechanized vehicle, and recreation management and use levels would continue, thus supporting the existing conditions outlined in Chapter 3 and summarized below.

Energy and Minerals. There would be no energy or minerals facilities currently operating in the Planning Area; therefore, no fees would be collected and no money would be contributed to the local economy from these uses.

Grazing Management. The number of livestock grazing public land in the Planning Area would continue to be about 24,500 head. Grazing fee collections would be about $132,993 annually if the current fee remains the same for the life of the plan. About 62 percent of the grazing fees would be returned to Harney County to fund rangeland improvement projects. Beef sales in Harney County were greater than $41 million in 2001, and the current sales would be expected to be close to that total. Currently, 35 permittees on 72 allotments are permitted for a total of 107,011 AUMs and utilizing 1,593,623 acres. The average amount of annual grazing fees collected would be approximately $145,000. The current stocking levels would continue subject to results of monitoring, and range improvement projects would be consistent with past management; thus, the economic effects of grazing should not change under this alternative.

Wildland Fire Management. Approximately 55 to 60 temporary firefighters would be employed each year and an average of $100,000 would be spent on contracting for fuels management in the Planning Area each year. The Burns District may also spend from $25,000 in a mild fire season to $275,000 in a severe season on temporary hires that come mostly from the local communities. Under this alternative, current spending and hiring practices would continue and there would be no change in the effects on the local economy.

Lands and Realty. Under this alternative would be the following classified acres: Zone 1 (Retention/Acquisition) - 1,533,505; Zone 2 (Exchange) - 108,219; Zone 3 (Disposal) - 7744. In the past ten years, the average annual fees collected by the BLM for realty use authorizations were $15,000 per year. Property taxes collected in Harney County in 2002 totaled $4.9 million, of which 26.5 percent went to the County General Fund. Harney County also received $518,880 in PILT in 2002, which should also remain approximately the same. Under this alternative the historical trend of a net loss of public lands in Harney County (See Cumulative Impacts) would be expected to continue into the future. This trend would be expected to diminish somewhat as public lands would be disposed of over time; therefore, less lands and opportunities would be available. The overall effect would be a slight net loss of public lands in the Planning Area

over the life of the plan, though not as much as the last 20 years, resulting in a corresponding increase in county tax revenues. Some of these conveyed public lands would be converted to alfalfa, crested wheatgrass or other development that would not have occurred in public ownership. Conversion of lands to a higher commodity value should result in a higher assessed value on the land, further improving County tax revenues.

Designation of ROW corridors provides project planners with some assurance that their proposals would be possible in a given area. Such assurance would result in reduced costs to the proponent that could then be passed on to the consumer.

Transportation and Roads. Under this alternative road maintenance on the Steens Loop Road in the CMPA would continue to be made available for bid to local companies, which amounts to an average annual contracting expense of $40,000 (based on five year average). The Steens Loop Road would be 52.59 miles in length. The BLM spent $78,302 on contracting for road maintenance in the CMPA in 2002. On the average, road maintenance would be contracted out at approximately $760 per mile. The snow line on the North Steens Loop Road would continue to be accessed by motorized vehicles during the winter months, which would provide recreational opportunities with economic ramifications for local businesses and service providers.

Off-Highway Vehicles. No data were available on expenditures by OHV and mechanized vehicle enthusiasts in the local economy, but it would be logical that this group spends money on food, gas, and possibly lodging in the local communities. OHV and mechanized use would remain at current levels under this alternative; therefore, the effects on the local economy should not change.

Recreation. Travel-related spending in Harney County in 2001 was $18,300,000 and was responsible for 7.4 percent of employment. Revenues from travel accounted for $3,900,000 in earnings.

Heritage tourism (e.g. visits to the Riddle Brothers Ranch) contributes to the local economy, but that contribution has not been quantified. Under this alternative, heritage tourism would likely continue at least at the current rate.

No new facilities or recreation development would be proposed and current use levels would be expected to continue. In addition, SRPs would continue to be issued at current levels and no measures to promote tourism/visitation would be planned; therefore, there should not be any change in the effect on the local economy.

Wilderness. There were 1,224 registered visitors to the Steens Mountain Wilderness in 2002; however, there would be no information on the total number of visitor days. The average value derived from recreation benefits would be $40 per visitor day and visitor expenditures average $30 per day. Ecological services (watershed protection, carbon storage, nutrient cycling, and fish and wildlife habitat) would be additional benefits associated with wilderness. No measures to promote tourism/visitation would be planned and the wilderness would remain under the current management and boundary; therefore, there should not be any change in the effect on the local economy.

4.12.3.3 Alternative B

Direct Effects

This alternative emphasizes natural processes and limits commodity production to that required by law. No grazing, SRPs, or OHV and mechanized use beyond that stipulated in the Steens Act would be allowed, and the Planning Area would be closed to minerals exploration or development as well as to energy and minerals leasing. The entire Planning Area would be an exclusion area for ROWs, realty use authorizations, and renewable energy development; emphasis would be on retention of lands. Recreation and tourism would be allowed but not promoted. Road closures resulting in decreased access and maintenance could inhibit recreational activities.

The effects to social and economic values associated with this alternative include the potential loss of revenues from mining, energy, agricultural production, and disposal of lands as well as a decline in revenues from recreation and tourism. Local contracts and employment would decline, resulting in indirect effects to the retail and service industries. Intrinsic and natural values would also be affected by this alternative. However, such effects on the natural environment may enhance environmental amenities such as scenic qualities and protection of cultural resources, thereby conserving

natural resources for future generations while promoting dispersed or primitive recreation, solitude, and Native American Traditional Practices. The increase in these values may offset any revenues lost from recreation and commodity production.

With adoption of this alternative, commodity production on public land within the Planning Area would be sharply curtailed. With the exception of those resource values assured by the Steens Act, most social and economic values would cease to be viable. Cattle production, mineral extraction, and energy development would not be allowed outside the CMPA, thereby affecting the economic base of Harney County. Tourism and recreation would be discouraged and restricted where possible; tourism and recreation dollars targeted for local businesses would be minimal.

Indirect Effects

Energy and Minerals. Under this alternative, there would be no opportunity for future development, which would limit any future economic gains; however, since there would be no economic benefits under the existing management, no change would occur in the current effects on the local economy.

Grazing Management. Grazing use would be eliminated within the AMU, which would mean a decrease in the total AUMs, a decrease in the total number of livestock grazed in the county and a decline in beef sales. No range projects would be proposed for the Planning Area, thus eliminating the current amount spent on. The number of livestock grazing within the Planning Area would decrease from the existing situation. There would be no collection of grazing fees from the AMU due to the complete elimination of livestock grazing from that area. In the CMPA, livestock grazing would be reduced from the present situation and the collection of grazing fees would be equally reduced. County revenues for range improvement funds would be greatly reduced, as would the sale of beef in Harney County due to decreased grazing in the Planning Area.

Wildland Fire Management. Actions requiring personnel and contractors would be similar to the current situation, causing no change in the effects on the economy.

Lands and Realty. Under this alternative, all lands would be Zone 1. There would be a slight net gain of public lands in the Planning Area resulting in a loss to county tax revenues since all acquisition would be by purchase or donation with no disposal of public lands. Complete retention and exclusion of ROWs and land use authorizations would also limit opportunities for the expansion of private commodity based enterprises. The converse could occur resulting in an offsetting effect on tax revenues. With less public lands available for disposal, more conversion and development of existing private lands may be expected, resulting in higher assessed values on those lands, thus higher property tax revenues.

Transportation and Roads. Under this alternative156 miles of roads would be closed in the CMPA and no longer require maintenance. Eighteen miles of the Steens Loop Road would be closed. This would decrease the amount spent on maintenance contracts by approximately $13,700. In addition, the remaining open sections of the Steens Loop Road would be maintained at a lower level. This could affect access for public land users leading to possible decreased tourism and loss of tourism dollars that contribute to the local economy. This alternative would mandate the closure of the Steens Loop Road during winter months. Winter recreation would effectively be discouraged during those times when the snowline would be at a distance from the gates resulting in possible lost revenue to the economy.

Off-Highway Vehicles. OHV and mechanized vehicle use would be limited and the closed areas would be maximized. This would result in decreased use and the correlating expenditures.

Recreation. Recreation and tourism would not be encouraged. No recreation or tourism oriented facilities would be constructed resulting in limited opportunities, and it would be anticipated that a decline in visitation could occur. This could mean losses in revenues to local businesses and service providers. In addition, the SRPs in the AMU would be revoked resulting in a decrease of fees collected by the BLM for SRPs. With closure of a stretch of the Steens Loop Road there would be a possible effect on heritage oriented tourism resulting in an effect on the local economy.

Wilderness. A five percent increase in the length of stay could result in a five percent increase in visitor days and the value derived from recreation benefits ($40 per visitor day) and visitor expenditures (average $30 per day).

4.12.3.4 Alternative C

Direct Effects

Under this alternative, commodity production would be restricted to increase protection of natural values. Commodity use would be allowed at levels that can be maintained through time and that contribute to the stability of the local livestock and mining industries. Local contracts would be targeted for services to restore and maintain natural systems. Management would continue to facilitate commodity uses and continued access and availability of natural resource amenities. Renewable energy authorizations, ROWs, and realty use authorizations would be considered on a case-by-case basis in the AMU outside of ACECs, WSRs and WSAs. Land tenure would be limited, and emphasis would be on acquisition of lands with natural or cultural values. OHV and mechanized vehicle use, SRPs, and some forms of recreation could be restricted. Road closures would decrease access for recreation or commodity production.

This alternative allows more use than Alternative B and provides for stability in the local economy; nevertheless, it would still have some effects on commodity production, realty use authorizations, land tenure, renewable energy, and recreation, thereby resulting in a decline of revenues from these uses. As with Alternative B, intrinsic and natural values would be affected. Improvements to the natural environment may enhance environmental amenities such as scenic qualities and protection of cultural resources. This may lead to increases in dispersed or primitive recreation, solitude, and Native American Traditional Practices. The increase in these values may offset any revenues lost from recreation and commodity production. In addition, the emphasis on targeting local contracts would benefit the local economy.

This alternative would result in restrictions on commodity production when natural resources were threatened. Local contracts for goods and services would be available primarily for projects designed for protection, conservation, restoration and maintenance of natural resources. Tourism and recreation would be managed as far as possible with an emphasis on low impact to natural values and on education concerning those values.

Indirect Effects

Energy and Minerals. Under this alternative, opportunities for future development would be limited and this would limit any future economic gains; however, there would be no economic benefits under the existing management so there would not be any change in the current effects on the local economy

Grazing Management. Grazing management and range improvements would be similar to the existing management with the exception that some grazing permits may be discontinued. Eliminating permits and AUMs would result in decreased fees (reduction of AUMs would reduce fees) and could reduce the total number of livestock grazed (reduction of AUMs equates to reduction of livestock and therefore of beef sales). The reduction in livestock grazing would decrease the amount of grazing fees collected from the existing level. This would reduce the amount the county would receive for range improvement funds. The sale of beef in Harney County would be reduced from the existing level.

Wildland Fire Management. Actions requiring personnel and contractors would be similar to the current situation so there would be no change in the effects on the economy.

Lands and Realty. Under this alternative Zone 1 lands would include 1,202,317 acres; Zone 1A lands would include 171,019 acre; Zone 1B lands would include 257,136 acres; Zone 2 lands would include 15,158 acres; and the Zone 3 lands would include 3,837 acres. There would be a slight net gain of public lands in the Planning Area with a corresponding loss in county tax revenues, since private lands and values acquired would exceed the values of public lands being disposed.

Designation of ROW corridors provide project planners with some assurance that their proposals would be possible in a given area. Such assurance would result in reduced costs to the proponent, which could then be passed on to the consumer.

Transportation and Roads. Twenty-nine miles of roads would be closed and no longer require maintenance. This would decrease the amount spent on contracted maintenance by approximately $22,000. In addition, this could affect access

for public land uses which contribute to the local economy. The Rooster Comb portion of the Steens Loop Road (three miles) would be permanently closed. This could affect tourist numbers bringing about decreased spending in the region. The existing gate system would be used for access to the snowline on the North Steens Loop Road for nonmotorized recreation only. There could be a reduction in winter recreation as a result.

Off-Highway Vehicles. OHV and mechanized vehicle use would be similar to current levels with a few additional closures, which may result in some decreased use and expenditures.

Recreation. Recreation and tourism would be similar to Alternative A with some additional limitations and it would be anticipated that a decline of visitation may occur. This could mean losses in local revenues. Heritage tourism could possibly be affected by the closure of the Rooster Comb section of the Steens Loop Road with some effect on tourist dollars.

Wilderness. A 15 percent increase in the length of stay for the Gorges and a ten percent increase in the length of stay for the plateau could result in a ten to 15 percent increase in visitor days and the value derived from recreation benefits ($40 per visitor day) and visitor expenditures (average $30 per day).

4.12.3.5 Alternative D

Direct Effects

This alternative attempts to balance social, economic, cultural, and ecological components while incorporating cooperative management. Sustainable commodity use and resource protection that promotes tourism would be encouraged. Renewable energy, ROWs, and realty use authorizations would not be as restrictive as Alternatives B or C, and the retention and acquisition of lands would focus on lands within specially designated areas such as the Steens Mountain Wilderness, WSAs, and ACECs. Recreation would be promoted and new sites developed. OHV and mechanized vehicle use would be allowed on most roads, ways, and trails in the Planning Area.

This alternative would be less restrictive on commodity uses than Alternatives B and C and would have more effects on the natural environment such as soils, vegetation, water resources, and wildlife than either Alternative B or C. The effects to commodity production, realty use authorizations, land tenure, renewable energy, and recreation would not be as great as Alternatives B and C and may favor the local economy. Intrinsic values would also be effected by this alternative.

Emphasis under this alternative would be placed on local cooperative, collaborative processes and cooperative agreements involving services products available locally. These processes and agreements would be aimed at providing for a sustainable and diverse local economy. This economy would be stable and result in long term economic viability for the regional populace. Tourism and recreation would be encouraged such that local businesses would benefit from money brought into the region. Emphasis, however, would be on establishment of steady, year around business that would provide consistent economic benefit to the area.

Indirect Effects

Energy and Minerals. This alternative would allow for increased development potential, which this would increase any future economic gains; however, there would be no economic benefits under the existing management so there would not be any change in the current effects on the local economy.

Grazing Management. Grazing management and range improvements would be similar to the existing management to promote sustainable grazing levels. Under this alternative, the number of livestock numbers and beef sales would be expected to remain at the current levels. Contract expenses would also remain at current levels. The permitted use would be nearly the same as in the present situation so the number of livestock grazing Public Land and the grazing fees collected would be nearly the same. The amount of funds that Harney County would receive for rangeland improvements would be about the same as in the present situation. The sales of beef in Harney County would be nearly the same as in the present situation at first and increase over the life of the plan due to inflation.

Wildland Fire Management. Emphasis on the suppression of fires that threaten area of economic values and managing for cultural, economic, ecological and social values may require additional staffing and contractors. An increase in staffing and an increase in contracting would mean an increase of revenue to the local economy.

Lands and Realty. Under this alternative Zone 1 lands would include 845,282 acres; Zone 1A lands would include 171,019acre; Zone 1B lands would include 257,136 acres; Zone 2 lands would include 364,771 acres; Zone 2A lands would include 1,319; and the Zone 3 lands would include 9,940 acres.

Generally, over the long term there would be no expected change in the ratio of public lands to private lands in the Planning Area due to a balanced variety of land tenure actions including both acquisitions and disposals. Due to additional public land disposals in neighboring Planning Areas there would continue to be an overall net loss of public lands in Harney County consistent with the historical trend. For this reason county tax revenues would be expected to increase. Property tax revenues would be further enhanced by disposal of public lands, some of which would be converted to commodity production such as seedings or alfalfa fields under private ownership, which should resulting in higher assessed values on those lands.

Designation of ROW corridors provide project planners with some assurance that their proposals would be possible in a given area. Such assurance would result in reduced costs to the proponent that could then be passed on to the consumer.

Transportation and Roads. Under this alternative none of the Steens Loop Road would be closed and contracting maintenance of the Steens Loop Road would continue. This could provide an average of $40,000 to the local economy. Within the CMPA 7 miles of roads would be closed and no longer require maintenance. This would possibly decrease tourism and could affect the local economy. This alternative would allow motorized winter access through the North Steens Loop Road gate for both motorized and nonmotorized recreation maintaining and possibly increasing the influx of recreation oriented money into the County.

Off-Highway Vehicles. Increased OHV and mechanized vehicle opportunities would result in increased use and correlating expenditures within the community.

Recreation. Recreation and tourism would be promoted and it would be anticipated that an increase in visitation could occur. This could mean gains in local revenues. Heritage tourism would be encouraged with emphasis on the historic social structure of Harney County.

Wilderness. A 20 percent increase in the length of stay for the Gorges and a 15 percent increase in the length of stay for the plateau could result in a 15 to 20 percent increase in visitor days and the value derived from recreation benefits ($40 per visitor day) and visitor expenditures (average $30 per day).

4.12.3.6 Alternative E

Direct Effects

Under this alternative, commodity production, local contracts, and tourism would be emphasized. Grazing and minerals exploration and development would be maximized, while renewable energy would be managed the same as under Alternative D. Land tenure would be focused on acquisition of lands with commodity producing values. ROW and corridor management would be similar to Alternative D but with fewer restrictions. New roads would be constructed and new recreation facilities would be developed. Recreation and OHV and mechanized vehicle use would be maximized and over half of the AMU would be designated as open for OHV and mechanized vehicle use.

This alternative would be the least restrictive on commodity uses and would have more effects than any other alternative on the natural environment such as soils, vegetation, water resources, and wildlife. This alternative would have minimal limiting effects on commodity production, land authorizations, land tenure, renewable energy, and recreation, since commodity production and public lands use would be maximized. Intrinsic values would be affected the most by this alternative. This alternative could, if enacted, provide the maximum production of goods and services. Contracts would

be targeted for local businesses and individuals to the extent possible. Tourism and recreation would be managed to bring in maximum dollars. Industries would be courted that would most enhance the regional economy.

Indirect Effects

Energy and Minerals. This alternative would maximize the potential for development and future revenues from minerals and energy.

Grazing Management. Grazing management and range improvements would be maximized under his alternative and the number of livestock numbers and beef sales would be expected to increase. An increase in AUMs would result in increased beef sales. Range improvement projects would result in an increase in contracting dollars. The permitted use would increase in the Planning Area, which would result in an increase in the number of livestock grazing public land and the amount of grazing fees collected. Harney County would receive more funds for range improvement projects providing a positive effect for the economy. Beef sales in Harney County would be greater than in the present situation and increase over the life of the plan with inflation.

Wildland Fire Management. Managing for resource and economic benefit may require additional staffing and contractors. Increase in staffing and an increase in contracting would mean an increase in financial support to the local economy. In addition, post fire seedings would focus on maximum economic gain, which may support additional livestock grazing and increase AUMs and beef sales.

Lands and Realty. Under this alternative Zone 1 lands would include 705,072 acres; Zone 1A lands would include 171,019acre; Zone 1B lands would include 257,136 acres; Zone 2 lands would include 503,947 acres; and the Zone 3 lands would include 12,296 acres. This alternative maximizes the potential for disposal of lands as well as ROWs and realty use authorizations. Land disposal would also increase opportunities for the expansion of private commodity based enterprises and the increased opportunities for ROWs and realty land authorizations, would also have effects on the economy. Although relative acreage in Zones 1, 1A, and 1B would generally remain constant, there would be the potential for an overall net loss of public lands in the Planning Area due to liberalized disposal possibilities in other zones. A corresponding increase in county tax revenues could occur. Further, tax revenues would be enhanced by disposal of public lands, some of which would be converted to commodity production such as seedings or alfalfa fields under private ownership, which should resulting in higher assessed values on those lands.

Designation of ROW corridors provide project planners with some assurance that their proposals would be possible in a given area. Such assurance would result in reduced costs to the proponent that could then be passed on to the consumer.

Transportation and Roads. Emphasis on local contracting in addition to possible new road construction and increased road maintenance would lead to increased spending on maintenance and local contracting. Under this alternative winter recreation access would be expanded. Motorized access to the snowline on the north would continue for both motorized and nonmotorized recreation. Winter access to the South Steens Campground would be instituted thereby increasing recreational opportunities and increased business opportunities.

Off-Highway Vehicles. OHV and mechanized vehicle use would be maximized and promoted, which would result in increased use and correlating expenditures within the community.

Recreation. Recreation and tourism would be maximized and it would be anticipated that an increase in visitation may occur. This could me increased revenues for local business and service providers. There would be increased emphasis on heritage tourism aimed at encouraging visitation to the region subsequently increasing income to local businesses and service providers.

4.12.4 Cumulative Effects

Economic activities conducted on the lands adjacent to the Planning Area (BLM, USFS, state, USFWS and private lands), as well as economic development or recession within the county, would produce cumulative effects on social and economic values. Anticipated recreation growth would increase the demand for recreation across all ownerships. Alternatives that close lands in the Planning Area to OHV or other recreational use, or that limit access, may place

additional pressure on surrounding lands. Increased recreation and tourism would also provide opportunities for growth in the retail and service sector and would reduce unemployment. Growth in recreation and tourism would also lead to increased traffic, effects to the rural character of the region, and diminished opportunities for solitude or primitive experiences.

Agricultural production in the region could be affected by reducing AUMs under Alternatives B and C, which would either put additional pressure on private lands or lead to a reduction in overall production, thereby affecting the agricultural sector of the economy. Increased recreation and commodity production in the Planning Area and surrounding lands may offset losses in the agricultural sector, but such a shift would be based on yet unknown commodity projections.

Minerals and energy would not be expected to be a major economic contributor to the region. Other BLM programs including land tenure, realty use authorizations, local contracting, purchasing, and employment would have cumulative effects when combined with the activities of private industry, the USFS, USFWS, and state and local governments.

4.13 Energy and Minerals

4.13.1 Goals and Objectives

Goal 1 - Provide opportunities for the exploration and development of locatable minerals in a culturally- and environmentally-sound manner.

Objective 1. Identify land with federal mineral estate available to locatable mineral exploration and development.

Goal 2 - Provide opportunities for the leasing and development of oil and gas, geothermal, and solid leasable mineral resources in a culturally- and environmentally-sound manner.

Objective 1. Identify leasing categories for the land.

Goal 3 - Provide opportunities for the production of saleable minerals by local, state and federal agencies and the public in a culturally- and environmentally-sound manner.

Objective 1. Permit development of mineral materials sources on a case-by-case basis in areas where development does not conflict with significant resource values.

4.13.2 Assumptions

No locatable mineral exploration and development activities would be authorized within the Steens Mineral Withdrawal Area. The Steens Mineral Withdrawal Area covers 45 percent of the Planning Area; designated WSRs, the Steens Mountain Wilderness, and some WSAs would be completely within the Steens Mineral Withdrawal Area. WSAs outside of the Steens Mineral Withdrawal Area cover 27 percent of the Planning Area. These two areas total 72 percent of the Planning Area (1,181,361 acres). As a result, 28 percent of the Planning Area (468,109 acres) would be available for designation as open or closed to locatable, leasable, and saleable mineral exploration and development.

Only a small percentage of the land in the Planning Area that would be available for designation as open or closed (land outside of the Steens Mineral Withdrawal Area, designated WSRs, wilderness, and WSAs) has high potential for locatable mineral resources. Table 2.4 shows available acres with high potential for the various categories of locatable minerals. Available land that has high potential for hot springs gold and mercury comprises two percent of the Planning Area (32,284 acres); 0.08 percent of the Planning Area (1,313 acres) would be available land that has high potential for porphyry copper, gold, and molybdenum; and only one acre would be available land that has high potential for diatomite. There would be no acres of BLM land outside of the Steens Mineral Withdrawal Area, designated WSRs, Wilderness and WSAs with high potential for uranium or vein gold.

Only a small percentage of the available land in the Planning Area has high potential for leasable mineral resources. Table 2.4 shows available acres with high potential for various categories of leasable minerals. There would be no

available acres with high potential for oil and gas resources, 332 available BLM acres in the Planning Area with high potential for geothermal resources, and no acres with high potential for sodium or potassium mineral resources.

Land available for saleable minerals development would be slightly different than the land available for leasable, and locatable minerals in that the Steens Mineral Withdrawal Area would be closed to mineral materials development by Congressional action and the WSA IMP except at those sites specifically identified in the Steens Act, which would be permitted for road maintenance use only. The Steens Act identifies sites comprising a total of 513 acres for development of mineral materials sources within the Steens Mineral Withdrawal Area. Table 2.4 shows land available for designation as open or closed as part of this land management analysis and does not include the 513 acres designated as open by Congressional action and the WSA IMP.

This planning document in its draft form identifies areas open to locatable, leasable and saleable energy and minerals exploration and development under the various alternatives. This planning document in its final form would identify the areas that would be open to energy and minerals exploration and development as a result of this environmental analysis.

Additional environmental analysis would be prepared prior to development of each new locatable mineral mine in areas open to locatable mineral exploration and development to address the specific proposal with the most current resource inventory information in order to identify mitigation needed. Additional environmental analysis would also be required for exploration activities that disturb more than five acres, bulk sampling that would remove 1,000 tons or more of presumed ore for testing, or for and surface disturbing operations greater than casual use proposed in areas within the WSRs, areas designated for potential addition to the WSRs, ACECs, Steens Mountain Wilderness, WSAs, areas designated "closed" to off-road vehicle use, and any lands or waters known to contain federally proposed or listed T&E species or their proposed or designated critical habitat. Locatable mineral exploration may be done under a notice and reclamation bond with no additional NEPA analysis if no more than five acres would be disturbed. Abandoned mine sites in WSAs in the Planning Area would be remediated based on site-specific sampling data and additional NEPA analysis.

Competitive and noncompetitive lease sales would be processed in areas open to leasing as identified by the final version of this planning document, with areas closed to leasing, areas where a NSO stipulation would be applied, and areas where seasonal and/or other special stipulations would be applied as determined as part of the environmental analysis in this planning document. Additional environmental analysis would be prepared prior to permitting exploration and development on a lease to address the specific proposal with the most current resource inventory information in order to identify mitigation needed that would be within the lease terms.

Additional environmental analysis would be prepared prior to development of each new saleable mineral materials source in areas open to mineral materials development to address the specific proposal with the most current resource inventory information in order to identify mitigation needed and to consider not permitting the proposed mineral materials development.

4.13.3 Analysis of Effects

4.13.3.1 Effects Common to All Alternatives

Direct Effects

The direct effects of energy and mineral exploration and development would be removal of the locatable, leasable, or saleable mineral commodity. Geothermal heat would be replenished by natural processes over a period of approximately 100 years; however, water removed containing geothermal heat may not be reinjected to intercept the heat source; therefore, water replenishment in a geothermal system could take longer in this semiarid climate.

Indirect Effects

Energy and mineral exploration and development incorporates site-specific mitigation measures required of the company to reduce or eliminate effects on other resources. Areas to be disturbed may require inventories or special studies to determine the extent of impacts on other resources. The operator may be required to complete the inventories or studies and hire a contractor to conduct the EA under guidelines provided by the BLM.

Common mitigation measures for locatables, nonenergy leasables, and saleable mineral materials can be found in BLM Handbook H-3809-1. For energy leasables, common mitigation measures can be found in the standard lease terms and conditions stated on the lease forms for oil and gas (Form 3110-11) and geothermal resources (Form 3200-4). Relocation of not more than 660 feet (0.125 mile) or the prohibition of new surface disturbance for not more than 60 days would be

generally consistent with lease rights. BMPs also serve as a source of site-specific mitigation measures and can be found in Best Management Practices for Reclaiming Surface Mines in Washington and Oregon, released as Oregon Department of Geology and Minerals Industries Open-File Report O-96-2.

The following paragraphs provide specific exploration and development constraints required to protect resources:

Air Quality. All operators would comply with applicable federal and state air quality standards, including the Clean Air Act. Common dust abatement measures would be watering dirt and gravel roads and having crushing equipment inspected and permitted by the DEQ.

Water Resources. All operators would comply with applicable federal and state water quality standards, including the Federal Water Pollution Control Act, as amended. Spill containment and cleanup measures would be required for toxic substances or petroleum products used in operations. The operator would take measures to isolate, remove, or control toxic materials. The operator would take measures to control erosion and prevent offsite water runoff.

Soils and Biological Soil Crusts. At the earliest feasible time, the operator would reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization for locatable minerals. Reclamation would include saving of topsoil for final application after reshaping of disturbed areas has been completed.

Riparian and Wetlands. The operator would take such action as may be needed to prevent adverse impacts to habitat of threatened or endangered species. Reclamation would include revegetation of disturbed areas.

Woodlands. The operator would take such action as may be needed to prevent adverse impacts to habitat of threatened or endangered species. Reclamation would include revegetation of disturbed areas.

Wildland Juniper Management Area. There would be neither mining claims nor minerals leases in the WJMA. Development of saleable minerals would be limited to the 120-acre site named Juniper Materials Source at T. 32 S., R. 32 3/4 E., Section 28 W2NW and Section 29 E2E2NE.

Rangelands. Operators may be required to construct a fence around their operations. Reclamation would include revegetation of disturbed areas.

Plants. A plan of operations and site-specific NEPA analysis would be required prior to exploration and development on a mining claim located on any lands or waters known to contain federally proposed or listed T&E species or their proposed or designated critical habitat. The operator would take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat that may be affected by such operations. Reclamation would include revegetation of disturbed areas.

Noxious Weeds. The operator may be required to take mitigation measures to reduce the spread of noxious weeds. Examples include requiring certified weed-free seed in reclamation, spraying weed infestations when they were discovered, and rinsing equipment at a commercial car wash prior to entering BLM administered lands.

Fish and Wildlife. A plan of operations and site-specific NEPA analysis would be required prior to exploration and development on a mining claim located on any lands or waters known to contain federally proposed or listed T&E species or their proposed or designated critical habitat. The operator would take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat that may be affected by such operations. Reclamation would include rehabilitation of fisheries and wildlife habitat. Operators may be required to construct a fence around their operations. Operators may be required to develop an alternate water source for use by wildlife if the operations affect an existing water source.

Paleontological Resources. Operators would not knowingly disturb or destroy any scientifically important paleontological remains. If they were encountered, the operator would immediately notify the authorized officer and would leave the discovery intact until told to proceed by the authorized officer. The authorized officer would take action to protect or remove the resource and allow operations to proceed within ten working days after notification. For locatable minerals operations, the federal government would bear the cost of investigations and salvage of paleontological values discovered after a plan of operations has been approved.

Native American Traditional Practices. Operators would not knowingly disturb or destroy any scientifically important historical or archaeological site or object. If they were encountered, the operator would immediately notify the authorized

officer and would leave the discovery intact until told to proceed by the authorized officer. The authorized officer would take action to protect or remove the resource and allow operations to proceed within ten working days after notification. For locatable minerals operations, the federal government would bear the cost of investigations and salvage of cultural values discovered after a plan of operations has been approved.

Visual Resources. VRM class objectives would affect mineral and energy development for both short- and long-term operations. Surface disturbing activities would not be allowed in VRM Class I areas (Wilderness, WSAs, wild WSRs, RNAs). Operations in VRM Class II areas would subject to stringent mitigation measures or stipulations to reduce the impacts to visual resources both during and after the development. Operations in VRM Classes III and IV would also be subject to mitigation measures or stipulations, but they would vary from VRM Class II mitigation measures or stipulations in degree, manner, and duration. Examples include, but would not be limited to, recontouring disturbed areas to match existing landforms, adding rock stains to freshly broken rock faces, painting above ground structures to blend with the landscape, and screening operating areas.

Social and Economic Values. The social and economic demand for locatable, leasable, and saleable minerals would be partially met by development of energy and mineral resources in the Planning Area.

Wild Horses and Burros. Reclamation would include revegetation of disturbed areas. Operators may be required to construct a fence around their operations or develop an alternate water source for use by wild horses and burros if the operations affect an existing water source.

Grazing Management. Operators may be required to construct a fence around their operations. Operators may be required to develop an alternate water source for use by cattle if the operations affect an existing water source.

Wildland Fire Management. The operator would comply with all applicable federal and state fire laws and regulations, and would take all reasonable measures to prevent and suppress fires in the area of operations.

Lands and Realty. Under the FLPMA, at Section 206, land exchanges may include the mineral estate if the values and objectives of the land that would leave federal ownership would not be greater than the values and objectives of the land that would be acquired. Under the FLPMA, at Section 209, land sales may include the mineral estate if there would be no known mineral values in the land, or nonmineral development would be more beneficial than mineral development subject to fair market value of the interests being conveyed. Recent land exchanges and sales in the Planning Area kept the mineral estate and surface estate united for ease in management of the land while maintaining compliance with the requirements of FLPMA. It would be expected that future land exchanges and sales would also keep the mineral and surface estates united under one owner.

Transportation and Roads. The authorized officer may require the operator to use existing roads to minimize the number of access routes. Alternatively, construction of a new road may be required to avoid conflicts with other users. Seasonal road closures may be necessary due to road degradation under wet conditions or use of an area as big game winter range. Access roads would be planned for only the minimum width needed for operations and would follow natural contours, where practicable, to minimize cut and fill. For locatable minerals activities under a notice or plan of operations, the location of access routes would be specified. When commercial hauling is involved and the use of an existing road is required, the authorized officer may require the operator to make appropriate arrangements for use and maintenance of the existing road.

Areas of Critical Environmental Concern. There would currently be no mining claims, mineral leases, nor saleable mineral materials sites in ACECs in the Planning Area. A plan of operations and site-specific NEPA analysis would be required prior to exploration and development on a mining claim located in an ACEC.

Wilderness. There would be no mining claims, mineral leases, or saleable mineral materials sites in Wilderness in the Planning Area. Wilderness is closed to location of new claims, mineral leases, and saleable mineral materials sites by Congressional action and the WSA IMP.

Wilderness Study Areas. There would be currently no mining claims, mineral leases, or saleable mineral materials sites in WSAs in the Planning Area except for Red Point School Materials Source, which is grandfathered under the WSA IMP and would not be permitted to extend west of the powerline. No new leases or saleable minerals sites would be permitted in WSAs. Mining claims may be filed in WSAs but no surface disturbing activities would be allowed until Congress designates the WSA as Wilderness or releases the area from WSA status. Abandoned mine sites in WSAs would be remediated based on site-specific sampling data and NEPA analysis. This information belongs in Chapter 3.

Ongoing management of the existing WSAs and the incorporation of less than 400 acres into two WSAs would not further affect energy and mineral development.

Wild and Scenic Rivers. There would currently be no mining claims, mineral leases, or saleable mineral materials sites in WSRs in the Planning Area. WSRs would be closed to location of new claims, mineral leases, and saleable mineral materials sites by Congressional action. Locatable minerals exploration and development would require a plan of operations and site-specific NEPA analysis in areas designated for potential addition to the WSRs.Alternative A

Direct Effects

Twenty-eight percent of the Planning Area is available for designation as open or closed; under this alternative all twenty-eight percent would be open to locatable and leasable mineral exploration and development.

Two percent of the Planning Area would be open to mineral exploration and development that has high potential for hot-springs gold and mercury; less than 0.1 percent of the Planning Area that has high potential for other locatable minerals would be open.

Only 332 acres in the open area have high potential for leasable minerals, and they would be open to leasing with standard lease stipulations.

Twenty-eight percent of the Planning Area would be open to consideration for saleable mineral materials development on a case-by-case basis. Development may not be permitted where it conflicts with resource values, as determined by the BLM Authorized Officer.

Indirect Effects

Indirect effects to minerals and energy could occur from ACECs, WSAs, or wilderness through exclusions of mining and renewable energy activities. Other SMA designations, special status species, visual resource concerns, cultural and historical sites, critical wildlife habitat, wetland/riparian habitat, water and fisheries issues and other resource values limit the number and type of renewable energy use authorizations, and generally constrain renewable energy development. At a minimum, these resource values may require costly mitigation or relocation of a proposal and at a maximum may prohibit the project altogether.

Indirect Effects

Indirect effects to locatable, leasable, and saleable energy and mineral exploration and development could occur from mitigation measures for other resources. At a minimum, these resource values may require redesign or relocation of a proposal and at a maximum may prohibit the project altogether.

4.13.3.2 Alternative B

Direct Effects

Under this alternative, the entire Planning Area would be closed to mineral exploration and development except where required by law or where essential to protect human safety, such as road construction under critical or emergency conditions.

Indirect Effects

There would be no indirect effects because the entire area would be withdrawn from locatable, leasable, and saleable energy and mineral activities.

4.13.3.3 Alternative C

Direct Effects

Under this alternative, which emphasizes protection of natural values, 13 percent of the Planning Area would be open to locatable and leasable mineral exploration and development as a result of withdrawals under this alternative in addition to the currently existing Congressional withdrawals in addition to Congressional action and the WSA IMP.

Less than 0.5 percent of the Planning Area that has high potential for locatable minerals would be open.

Only 43 acres in the Planning Area with high potential for leasable minerals would be open to leasing. They would be open with standard lease stipulations.

Thirteen percent of the Planning Area would be open to consideration for saleable mineral materials removal on a case-by-case basis. Development may not be permitted in the open area where it conflicts with resource values, as determined by the BLM Authorized Officer.

The result of this alternative would be to discourage exploration and development of energy and mineral resources.

Indirect Effects

Indirect effects to minerals and energy would occur from resource values that at a minimum may require redesign or relocation of a proposal and at a maximum may prohibit the project altogether.

4.13.3.4 Alternative D

Direct Effects

Twenty-seven percent of the Planning Area would be open to locatable mineral exploration and development; 1.5 percent of the Planning Area that has high potential for hot springs gold and mercury would be open; and less than 0.1 percent that has high potential for other locatable minerals would be open.

Twenty-eight percent of the Planning Area would be open to leasable mineral exploration and development. Only 332 acres in the Planning Area with high potential for leasable minerals would be open, of which 281 acres would be open for leasing with seasonal or other special stipulations and 43 acres would be open to leasing with standard lease stipulations.

Twenty-seven percent of the Planning Area would be open to consideration for saleable mineral materials removal on a case-by-case basis. Development may not be permitted in the open area where it conflicts with resource values, as determined by the BLM Authorized Officer.

Indirect Effects

Indirect effects to energy and minerals could occur from other resource values that may require mitigation or relocation of a proposal at a minimum and at a maximum may prohibit the project altogether.

4.13.3.5 Alternative E

Direct Effects

Minerals management would be conducted the same as under Alternative A; therefore, the effects would be the same.

Indirect Effects

Indirect effects to energy and minerals exploration and development could occur from other resource values. At a minimum, other resource values may require mitigation or relocation of a proposal and at a maximum may prohibit the project altogether.

4.13.4 Summary of Effects

Alternatives A and E would close the least amount of public land to locatable, leasable, and saleable mineral exploration and development and would therefore offer the greatest opportunity for these activities. Alternative B would close the entire Planning Area. Alternatives C and D would be intermediate in their overall effects to locatable, leaseable, and saleable mineral exploration and development with Alternative C more restrictive.

4.13.5 Cumulative Effects

A relatively small amount of locatable mineral exploration, mining, and occupancy have occurred in the past, is occurring now, and is expected to occur in the future under Alternatives A, C, D, and E despite the large amount of land in the Planning Area that is withdrawn from mineral entry by Congressional action and the WSA IMP. With every additional mining claim, notice, plan of operations, or occupancy, the cumulative effects to resources of the area would increase. Compliance with relevant laws, regulations and policy would minimize cumulative effects on those resources.

The potential for oil and gas resources and solid leasable minerals activity is low. There has only been sporadic interest in oil and gas exploration in the past, and no resource has been discovered. There has been no serious interest in solid leasable minerals in over a century, and now the high potential area is within the area closed to leasing by Congressional action and WSA IMP guidance. Almost all of the land in the Planning Area with high potential for geothermal resources is closed to leasing by Congressional action and the WSA IMP. Constraints placed on leasing and lease operations under the various alternatives would discourage exploration and development; however, they would have little cumulative impact on development of oil and gas, solid leasable minerals, and geothermal resources because there is moderate to low potential for those resources in the area available for leasing.

There would always demand for saleable minerals for use in road maintenance, and development generally conflicts with one or more resources. Constraints placed on development of rock sources under the various alternatives would be subject to the judgement and final decision of the BLM Authorized Officer (Andrews Field Manager), and as time goes by those decisions may be harder to make. It may be necessary at times to accept resource impacts such as visual impacts in a relatively pristine area because of the need to obtain rock from a saleable mineral materials source. Since the Steens Act of 2000 had a provision to allow development of existing saleable mineral materials sources for road maintenance use, the Steens Mineral Withdrawal Area designated in the Steens Act would not have a cumulative impact on saleable minerals development until the existing sources would be exhausted.

4.14 Wild Horses and Burros

4.14.1 Goals and Objectives

Goal 1 – Manage and maintain healthy wild horse herds in established HMAs at AMLs to ensure a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values

Objective 1. Designate HMAs.

Objective 2. Designate/retain Herd Areas in inactive status

Objective 3. Designate AMLs for each HMA and allocate year long forage for wild horses

Objective 4. Manage wild horse numbers within established HMAs to ensure a thriving natural ecological balance.

Objective 5. Provide adequate year-round water sources to sustain wild horse herds.

Objective 6. Maintain herd viability and genetic diversity.

4.14.2 Assumptions

When removed from the herds, wild horses in excess of the minimum AML would be placed in the BLM's adoption program or other long-term care. Under Alternative E, increases in livestock grazing would not result in improper rangeland management.

Wild horses and their habitat would be monitored to determine the timing and implementation of gatherings, and to either support the existing AMLs or to refine and adjust AMLs as needed. This monitoring process should ensure the maintenance of a thriving ecological balance between wild horses and other resource objectives and uses. Monitoring would include the following: 1) periodic horse counts to identify age and sex composition of herds; 2) identification of areas used by livestock and horses; 3) collecting climate data; 4) conducting vegetation utilization studies; and 5) determining vegetation condition and trend.

4.14.3 Analysis of Alternatives

4.14.3.1 Effects Common to All Alternatives

Direct Effects

Viable herds of wild horses and their herd characteristics would be maintained within the boundaries of all HMAs through the use of perimeter fences. Wild horses straying outside HMA boundaries would be removed or returned to the HMA, thereby confining effects from wild horses to the HMAs. Gates in interior pasture division fences would be managed to maximize horse access to the HMA.

Indirect Effects

Rangelands. Few nonnative seedings occur within HMA boundaries. The effect of restoring native species such as sagebrush to nonnative seedings or the action of disking or brushbeating nonnative seedings would have little to no effect on the availability of forage for wild horses.

Noxious Weeds. Noxious weed prevention and control would continue to be a priority in all alternatives. Noxious weed invasion of native plant communities results in loss of forage availability, and degraded plant community structure, cover, composition, and diversity. The priority on noxious weed prevention and control would reduce these effects on wild horses.

Special Status Species. Management actions designed to protect special status species may limit opportunities to improve conditions for wild horses and may conflict with the needs of wild horses, especially if protective fencing would be used.

Grazing Management. Whenever existing grazing management practices on public land would be determined to be contributing to nonattainment of resource objectives, appropriate actions would be implemented that would achieve habitat and other resource objectives. In areas where grazing would be determined to be contributing to nonachievement of S&Gs changes in management could be implemented that would result in increased plant density and cover that could increase available forage for wild horses.

Wildland Fire Management. Areas burned by wildland or prescribed fire would be rested from livestock grazing for a minimum of two growing seasons, with grazing resumed only when monitoring data support achievement of objectives. This practice would allow vegetation to increase in density and vigor and could potentially increase forage availability. Increased vegetation could provide potential increases in suitable forage for wild horses.

4.14.3.2 Alternative A

Direct Effects

The acreage of the existing HMAs would remain the same. The Steens Act legislated land exchanges between private and public lands. Retaining the current HMA boundaries would result in two HMAs, the Kiger and South Steens, encompassing more private property. That BLM goals and objectives for wild horses would be met by private landowners could not be assumed. Failure to adjust the HMA boundaries could result in difficulties meeting BLM goals and objectives for the Kiger and South Steens HMAs. The Alvord-Tule Springs HMA would not be combined with the Coyote Lake HMA. The two HMAs would continue to be managed separately by the Burns and Vale Districts, respectively. Since the current HMAs would be retained, no adjustments to the current Herd Areas would be necessary.

The current AMLs would be retained for all HMAs. The AMLs would be based on the number of acres of BLM land and available forage in an HMA. The number of acres of public land in the Kiger and South Steens HMAs was reduced due to land exchanges. Private land owners could use available forage on these recently transferred lands for their

livestock. Failure to consider adjustments of the AMLs in these two HMAs could result in resource damage such as excess forage utilization, which might then result in undesirable rangeland trends.

Forage needs of wild horses would be met under current management strategies. Alternative A does not provide any management actions to adjust current AMLs other than those stated in the herd management plans. However, as conditions vary in the future, events such as drought might require temporary adjustments in horse numbers in order to meet other resource objectives. If vegetation management objectives would not be met, permanent adjustments in AMLs might also be necessary.

As wild horses increase in number above AMLs with no corresponding reduction in livestock numbers, key areas can become overgrazed, with associated decline in forage production and availability. These effects would be compounded during periods of drought, resulting in decreased health of wild horses. If horses would not be gathered when the upper limit of the AML would be reached, horses consume more than the allocated forage, leading to overgrazing and a decline in forage production and availability.

In order to maintain a thriving natural ecological balance within HMAs, wild horses would continue to be gathered every three to four years. Exceptions to current gathering practices include severe threats to the survival of wild horses or the health of rangeland resources. Under the current gathering schedule and AML, horses in the Riddle Mountain HMA have consumed more than the allocated forage during four out of nine years, suggesting that changes might be warranted.

Current public lands water sources would be maintained. Legal access to critical private water sources currently used by wild horses, other than those identified in existing herd management plans, would not be pursued. If horses were excluded from private water sources at some time in the future, herd health could decline, especially during droughts, and horses would probably need to be gathered more frequently.

Indirect Effects

Riparian and Wetlands. The meadows and wetlands associated with riparian areas provide forage for wild horses. Current management actions to maintain and/or improve riparian vegetation would provide stable or increased forage production and availability for horses to the extent that these measures maintain or improve meadow and wetland habitat. Existing grazing systems would be designed to maintain or improve the health of these sites, improving forage production and availability. Exclosures on streams, springs, and riparian/wetland areas, while excluding wild horses from forage, may provide water for horses over a longer period of the year.

Roads within or affecting riparian areas would be maintained; additional roads in riparian areas would be developed in conformance with existing laws and regulations. The effects of roads on wild horses would continue, including temporary displacement due to vehicle noise and human disturbance, and in some places, loss of meadow habitat. Although roads could be designed to minimize the effects of habitat loss for wild horses, the development and management of roads would be based on all resource management objectives.

Woodlands. Woodlands do not provide any critical habitat component for wild horses. The management actions associated with woodlands might temporarily displace any wild horses that were present, but horses could return after activity ceased. Suppression of all lightning- and human-caused fires would eliminate the short-term potential effects of fire, such as loss of forage (e.g., grass and forb understory). Management actions to reduce western juniper in quaking aspen and mountain mahogany would help to maintain and increase forage production for horses through subsequent growth of understory grasses and forbs. Management actions to remove younger western juniper trees from sagebrush habitats would also increase the availability of forage for wild horses through increased growth of grasses and forbs.

Rangelands. The ecological status of native plant communities would be maintained or improved. Plant density and coverage in these communities would be maintained or increased, allowing AMLs to be maintained.

Management actions that restore areas burned by wildland fire or prescribed fire, could prevent conversion of the burned landscape into one dominated by cheatgrass. This would reduce future habitat loss and maintain or improve forage productivity and diversity for wild horses.

Noxious Weeds. The current integrated management of weeds would continue. Control on disturbed areas would be emphasized, as would inventories of new infestations. Limiting the spread of noxious weeds would help maintain forage species needed by wild horses.

Fish and Wildlife. In coordination with the USFWS, ODFW, and permittees, approximately 9,000 acres of deer winter range, which would be in unsatisfactory condition, would be reseeded with sagebrush and a mix of other native and nonnative species. To the extent that these actions would occur within HMAs, additional acreage of suitable forage for wild horses could be available.

Opportunities for the improvement/restoration of fish and wildlife habitat through vegetation manipulation, water developments, etc., would be identified and undertaken. Some improvements such as water development might provide additional resources for horses. However, if the improvements used exclusionary fencing, horses might be restricted from using the improvements.

Forage for wildlife would be allocated at management objective levels. Forage needs of wildlife would be met under current management strategies.

Energy and Mineral Development. Management actions under Energy and Mineral exploration and development, depending on the size, nature, and location of the development, could affect wild horses through displacement from the immediate area and surroundings; interruption of normal movement patterns; and changes in normal areas of use.

Grazing Management. Existing grazing management actions should ensure that livestock use would be balanced with forage production, assuring that horses would have adequate year long forage. Adequate forage would help maintain herd health and viability. Livestock grazing would be managed under a variety of systems on an allotment basis, and where necessary, takes into account the year-round presence of wild horses.

Wildland Fire Management. All wildland fires would be suppressed. This would reduce short-term loss of forage and habitat associated with wildland fire. However, in some locations aggressive fire suppression could contribute to long-term conditions that would allow larger, hotter fires to develop. Such fires would contribute to long-term changes in the vegetation community through a more frequent fire cycle and a consequent decrease in the value of forage plants due to increased presence of undesirable nonnative plant species.

Mechanical treatments and/or prescribed fire to reduce fuel loading in areas where the fire regime has been altered would reduce forage availability in the short term until vegetation recovered from the initial disturbance. Long-term effects of this practice would be reduced dominance of woody vegetation and release of desirable plants. Plant diversity and productivity of herbaceous species would be maintained or increased. An increase in herbaceous vegetation would increase forage availability for horses. Reductions in fuel loading would also decrease the likelihood of catastrophic fire, thereby reducing the potential loss of large areas of wild horse habitat.

Burned areas would be assessed for rehabilitation, which could be accomplished using a combination of mechanized and nonmechanized equipment. In areas where natural recovery would be limited, a mixture of native and desirable nonnative plant species would be used to rehabilitate burned areas. These actions would promote the development of viable plant communities that provide forage for horses, and would help to limit the spread of noxious weeds, which provide little forage value for horses.

Transportation and Roads. This alternative would maintain existing transportation and roads management while implementing the provisions of the Steens Act. The operation and maintenance of the existing roads would be unlikely to cause any additional displacement or disturbance to wild horses, assuming that they have already adapted to the presence and use of these roads.

Off-Highway Vehicles. OHVs and mechanized vehicles would continue to be managed in accordance with the existing open, limited, and closed OHV designations. OHV and mechanized vehicle use along specific routes would temporarily displace wild horses, but would be unlikely to result in long term loss of habitat. Where OHV or mechanized vehicle use would be limited and overlaps with HMAs, no disturbance or displacement to wild horses would be expected.

Recreation. Some disturbance and displacement of wild horses would be expected from existing recreation use. To the extent that unlimited dispersed recreation increases and consistently overlaps with high horse-use areas, horses could temporarily alter their use patterns or be permanently displaced.

4.14.3.3 Alternative B

Direct Effects

Combining the current 343,201 acre Alvord-Tule Springs HMA with the Coyote Lake HMA would result in the 588,420 acre newly-named Alvord-Tule Springs-Coyote Lake HMA. The HMA would then be managed as one unit by the BLM's Vale District. The Kiger HMA would be reduced from its current 38,359 acres to 26,873 acres. The South Steens HMA would be reduced from its current 127,838 acres to 102,342 acres.

To maintain an administrative record of the historic location of horses in the Kiger HMA, a Kiger Herd Area would be created, depicting the loss of public lands resulting from the Steens land exchanges. An adjustment in the South Steens Herd Area would be necessary in response to changes in the HMA due to the loss of public land from the Steens land exchanges. The existing Herd Area would be increased to reflect the decreased size of the HMA.

The current AMLs and wild horse forage allocations would be retained in all HMAs. However, management actions would allow for consideration of permanent increases or decreases, thereby providing greater management flexibility in response to changing environmental conditions and modified HMA size. Allowing for permanent adjustments in AML would help to meet objectives for wild horses while maintaining healthy herds and a thriving ecological balance and meeting the objectives for other resources. The effects of any adjustments in AML on gathering frequency would be analyzed on a case-by-case basis.

The decreased size of the Kiger and South Steens HMAs would warrant consideration of downward adjustments in the AMLs and forage allocations. Failure to do so could result in overgazing, a decline in range condition, poor horse health, and consequently, more frequent gathering. However, any adjustments in AML would need to take into account historic and current use patterns of horses within these HMAs. Any adjustments in the AMLs and forage allocations for the Alvord-Tule Springs-Coyote Lake HMA would need to be coordinated with the BLM's Vale District.

The addition of herd health as one of the measures to consider before initiating herd gathering would provide greater management flexibility than actions provided by alternative A. Besides gathering, other approved methods of population control would be allowed. If these additional methods would be effective, the 20 percent average annual increase in herd numbers would possibly decline, thereby increasing the current time interval of three to four years between gathers, and reducing stress to horses caused by gathering. The assumption would be that these additional methods would be implemented during gathers, which would minimize stress directly attributable to the other methods of population control.

The management action to "normally" reduce herd numbers to the low end of the AML would provide more options for herd management than would occur under alternative A. This flexibility would be important as the efficacy of additional methods of population control would be implemented and evaluated. New methods might alter the need for reducing horse numbers to the low end of the AML as a standard practice.

Water would be more limiting than forage within HMAs. The management action to develop additional water sources could allow for better health of horses during periods of drought, and distribute horse use thereby reducing the likelihood of overgrazing.

The management action to acquire legal access to critical private water sources that wild horses use, would help to provide more stable water sources. If horses were excluded from these water sources at some time in the future, herd health could decline, especially during droughts.

Gathering excess horses would continue, but the time period between gatherings could be potentially increased. The option to modify the male/female sex ratio from 50:50 to 60:40 could increase the time between gatherings due to a slower annual population growth rate than the average of 20 percent. Allowing for the introduction of horses from outside the HMA could help to improve herd health by increasing genome diversity.

Indirect Effects

Riparian and Wetlands. The effects of management actions under this alternative would be the same as in Alternative A except forage availability would increase in the AMU. Reliance on natural maintenance and recovery processes in riparian/wetland areas and adjacent upland areas could result in slower development of improved forage conditions.

Upland vegetation communities adjacent to riparian areas would be managed to reduce fire frequency and intensity, with an emphasis on native vegetation. This would help maintain forage availability for horses.

Active restoration of upland and riparian communities would be limited to sites that would not attain advanced ecological status in 20 to 50 years. In the short term, the reliance on passive measures for other areas could reduce the availability of forage for wild horses and in some locations, could increase the risk of weed invasion.

Woodlands. Management actions associated with the maintenance, restoration, and improvement of quaking aspen and mountain mahogany stands would rely on natural processes and could take a long period of time to achieve goals. If natural processes result in an increase in western juniper a decrease in the amount of understory forage suitable for wild horses could occur. Mechanical removal of all younger western juniper trees from riparian and sagebrush habitats would result in an increase in understory forage suitable for wild horses.

Rangelands. Rangeland management would emphasize passive methods and natural processes to achieve goals and objectives. In some places, management emphasizing passive methods and natural processes could result in less suitable forage for wild horses due to invasive weeds and other undesirable species such as cheatgrass. Management actions would not include the rehabilitation of burned areas, which could result in decreased forage for wild horses due to undesirable nonnative species invasion. Providing for and restoring degraded and decadent shrublands would reduce the dominance of woody vegetation and release desirable plants, which could result in increased growth of grasses and forbs, providing forage for wild horses.

Noxious Weeds. The management actions would produce similar effects to those described in alternative A. However, the potential for weed invasion might also be greater than in other alternatives because fewer methods of control would be authorized.

Fish and Wildlife. The management actions associated with the goals and objectives for fish and wildlife include using sagebrush in seed mixes to reseed 9,000 acres of deer winter range. Sagebrush does not provide forage for wild horses and to the degree that sagebrush replaces herbaceous species, forage availability for wild horses could decline.

Opportunities would be identified and undertaken for the improvement/restoration of fish and wildlife habitat through the use of wildland fire, fence removal, or other mainly passive methods. The effects of this action would be similar to Alternative A. Any removal of fences within designated HMAs would reduce impediments to movement and maximize the area available to wild horses.

Forage for wildlife would be allocated above management objective levels and wildlife populations would be allowed to expand naturally.

Minerals and Energy. None of the potential effects due to energy and mineral exploration, and development, as described in alternative A would occur because the entire Planning Area would be recommended for withdrawal from locatable, leasable and saleable mineral entry.

Grazing Management. No livestock grazing would be authorized in the AMU. The elimination of livestock could lead to increased forage availability for wild horses. The AMLs for affected HMAs could be increased, with a thriving ecological balance still being maintained. Grazing on the CMPA would be allowed consistent with the Steens Act; nonconsumptive uses would be emphasized, as would natural resource objectives. The AMLs for herds in this area could potentially increase. Since permitted use would be discontinued in all allotments where permits would be relinquished, and to the extent this occurs within HMAs, increases in forage availability and in wild horse AMLs could occur.

Wildland Fire Management. Wildland fires that threaten property, human life or significant resource values would be suppressed. Other wildland fires would be evaluated and managed with minimal suppression actions. Suppression of wildland fires in areas with high resource value would preserve the habitat's availability for wild horses. However, over the long term, such activities could possibly contribute to the occurrence of larger, hotter fires, a loss of suitable habitat, increased fire cycle, and invasion of undesirable nonnative species.

All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The lack of flexibility regarding choice of seed mix might extend the length of time for rehabilitation. An increased period of time to achieve restoration would represent a loss of forage for wild horses during that period of time. If a substantial portion of an HMA were burned, loss of forage could contribute to the need for emergency gathers.

Transportation and Roads. Only roads required by law would be constructed, and road maintenance would not occur. Road closures would be the most extensive under this alternative. Disturbance effects to wild horses from transportation and roads would be minimal under this alternative.

Off-Highway Vehicles. Areas designated as closed would be maximized. Disturbance from OHV and mechanized vehicle use would be reduced.

Recreation. Visitor use would be managed for dispersed recreation opportunities through closures, regulations, and minimal development. Some undeveloped recreation sites would be closed where natural processes would be jeopardized, which could improve suitable habitat conditions for wild horses. Wild horses would be unlikely to be disturbed by recreational use, unless use would be concentrated in areas preferred by the horses.

4.14.3.4 Alternative C

Direct Effects

The direct effects of Alternative C would be the same as those described for Alternative B.

Indirect Effects

Riparian and Wetlands. Under this alternative both active and passive measures would be used to manage livestock in riparian/wetland areas. Active measures could also be used to accelerate the progress of riparian/wetland areas to an advanced ecological status. The effects on wild horses would be that additional forage may be available but would probably not be allocated to wild horses in order to protect natural values.

Woodlands. Although the management actions for woodlands would be different under Alternative C than for Alternative A, the potential disturbance effects on wild horses would be the same. The effects of allowing natural and human ignited wildland fire to reduce the influence of western juniper on sagebrush and riparian habitats would be the same as those described for Alternative B. Using prescribed fire as well as wildland fire to reduce the influence of western juniper on sagebrush and riparian plant communities would result in long-term increases in suitable forage for wild horses. The option of using prescribed fire would allow resource managers an additional method to achieve goals and could result in the development of suitable forage for wild horses sooner than would occur with wildland fire only.

Rangelands. Management actions would minimize the emphasis on commodity production of herbaceous and shrubby vegetation and would emphasize natural values associated with diverse composition and structure of native vegetation. If this action resulted in less suitable forage for livestock, increased competition between livestock and wild horses for native plant species could occur.

Areas dominated by cheatgrass or an overstory of sagebrush with a few herbaceous plants would be treated. These habitat types provide less forage for wild horses. Following treatment of these habitats, more forage would be available for use by wild horses.

The rehabilitation of plant communities dominated by undesirable invasive species or invasive juniper would increase forage availability for wild horses. Other management actions, including reduction of woody vegetation and management of big sagebrush habitat, would also increase forage availability. Reductions in fuel loading (i.e., reduction of woody vegetation) would decrease the likelihood of catastrophic fire, which would reduce the potential loss of large portions of wild horse habitat. Management actions would not include the rehabilitation of burned areas, which could reduce forage availability for wild horses in the short term.

Noxious Weeds. The management actions would produce similar effects to those described in Alternative A.

Fish and Wildlife. Throughout the Planning Area, as many acres as possible of low diversity native vegetation in deer winter range would be inter-seeded to establish native plant species. Other desirable nonnative plant species may be used on a limited basis. Livestock grazing could be used to suppress competition and allow sagebrush to become established. This could result in some increase in forage productivity for wild horses, but livestock use could reduce its availability to wild horses. Sagebrush does not provide forage for wild horses and to the degree that sagebrush replaces herbaceous species, forage availability for wild horses could decline.

Opportunities to improve/restore fish and wildlife habitat through wildland fire and other vegetation manipulations, limited fence removal, water developments, etc. would be identified. The effects of this action would be similar to Alternative A. Any limited removal of fences within HMAs would reduce impediments to allow for greater unrestricted movement of wild horses.

Forage for wildlife would be allocated above management objectives and wildlife populations would be allowed to expand naturally or through limited transplants. This might decrease the likelihood the wild horse AMLs could be increased.

Energy and Minerals. Many special management areas would be withdrawn from various types of energy and mineral development. These areas would include ACECs, RCAs, and areas containing critical habitat for special status species. The potential effects would be the same as those described for Alternative A, but would be reduced to the extent that additional acres would be excluded from project activity.

Grazing Management. Nonconsumptive uses would be emphasized in the AMU while providing for minimal sustainable livestock grazing that meets allotment management objectives. This management action would increase the likelihood that wild horse AMLs could potentially be increased in the AMU. Grazing within the CMPA would be allowed consistent with Steens Act, but nonconsumptive uses as well as natural resource objectives would be emphasized. The AMLs for herds in the CMPA could potentially be increased. Other management actions to meet natural resource objectives, including discontinued use in vacant allotments that have resource conflicts, could increase potential forage availability for wild horses to the extent that livestock use would be decreased.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. To the extent that these areas coincide with areas used by wild horses, suitable forage and habitat would be maintained. However, it would also be possible that over the long-term, such activities could contribute to the occurrence of larger, hotter fires, and a loss of suitable habitat and increased fire cycle and weed invasion. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions if they would be appropriate for resource benefits. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The effects of this management action would be similar to those described under Alternative B.

Transportation and Roads. Transportation systems would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. To the extent that this results in road closures, seasonal closures, and other limitations, disturbance effects to wild horses would be minimized.

Off-Highway Vehicles. The effects of OHV designations on wild horses would be the same as described for Alternative B.

Recreation. Protection of natural values while providing for developed and dispersed types of recreation could reduce disturbance to wild horses. To the extent that recreational use would be directed away from preferred horse use areas disturbance would be reduced. Some disturbance and displacement of wild horses would be expected from existing recreation. In some locations, concentrated recreation use could result in some loss of wild horse habitat but the amount lost would be relatively small. To the extent that dispersed recreation increases and consistently overlaps with high horse-use areas, horses could temporarily alter their use patterns or be permanently displaced.

4.14.3.5 Alternative D

Direct Effects

The effect of boundary and acreage adjustments for Objective 1 would be the same as for alternative B, with the following exception: The South Steens HMA would be reduced in acreage from its current 127,838 acres to 126,732 acres.

To maintain an administrative record of the historic location of horses in the Kiger HMA, a Kiger Herd Area would be created, depicting the loss of public lands resulting from the Steens land exchanges. An adjustment in the South Steens Herd Area would be necessary in response to changes in the HMA. The existing Herd Area would be increased to reflect the decreased size of the HMA resulting from the Steens land exchanges.

The effects of all other management actions would be the same as those described for alternative B. However, the management emphasis on balanced uses and cooperative management practices means that wild horses would not be given preference over other uses for increasing forage allocations, and thus AMLs. Horses might need to be gathered more often in order to meet the objectives for other resources.

Indirect Effects

Riparian and Wetlands. Similar to Alternative C, management of existing grazing systems would be directed toward improvements to maintain PFC and promote an advanced ecological status. The rate of progress toward achieving an advanced ecological status for restoration of riparian and upland vegetation would be expected to increase because both active and passive measures would be used. In some locations this might require exclusionary fencing to keep horses out of these habitat types, resulting in a temporary loss of suitable habitat. The ecological status objectives would be dependent on meeting multiple resource objectives. In some locations, this could result in increased forage for wild horses, while in other areas restrictions due to compliance with the CWA, ESA, and Executive Orders might require temporary or permanent changes in areas used by wild horses.

Woodlands. The effects of management actions for woodlands on wild horses would be the same as those described under Alternative C.

Rangelands. Grazing systems and range improvements designed to improve ecological conditions would have similar effects as those described in Alternative A. Since the emphasis would be on balanced, cooperative management practices, increased forage could be used by wild horses as well as livestock. The ecological status of native plant communities would be maintained or improved. Consistent with resource objectives, actions would be implemented that would diversify the structure and composition of selected nonnative seedings. These actions would also maintain or improve available forage for wild horses.

The management actions of restoring plant communities that do not meet the DRC due to dominance by undesirable nonnative species, and using prescribed fire and wildland fire to create a mosaic of multiple successional stages, reduce the dominance of woody vegetation, and release suppressed desirable plants. These actions could reduce forage availability in the short term, but in the long term they would increase the amount and diversity of suitable forage for wild horses.

Noxious Weeds. The management actions would produce effects similar to those described in Alternative A.

Fish and Wildlife. Throughout the Planning Area, most of the acres of native vegetation with low diversity in deer winter range would be interseeded to establish native plant species. Nonnative plant species could be used where appropriate. Livestock grazing would be used to suppress competition and allow sagebrush to become established. This would result in some increase in forage productivity for wild horses, but livestock use could reduce its availability to wild horses. Sagebrush does not provide forage for wild horses and to the degree that sagebrush replaces herbaceous species, forage availability for wild horses could decline.

The effects of improvements to and/or restoration of fish and wildlife habitat through wildland fire, other vegetation manipulations, water developments, etc., would be the same as those identified in Alternative A. However, fence removal would not be completed due to livestock grazing. The area available for horses would remain the same as under the current management situation.

Forage for wildlife would be allocated above management objective levels and wildlife populations would be allowed to expand naturally or through limited transplants. The effects of this management action would be the same as those described for Alternative A.

Energy and Minerals. Many special management areas, including ACECs, would be withdrawn from locatable mineral development. Seasonal and/or special stipulations would be implemented for big game winter range, areas containing federally listed species and their designated critical habitat, and within 0.6 mile of identified sage grouse leks. The effects of disturbance to wild horses would be reduced since acreage open to exploration and development would be reduced.

Grazing Management. Nonconsumptive uses would not be emphasized in the development of grazing management prescriptions both in the AMU and the CMPA as in Alternatives B and C, but allotments would be managed to meet natural resource objectives. Any adjustments in AML and livestock use would likely be proportional.

Wildland Fire Management. Management actions and their effects on wild horses would be similar to Alternative C. However, a mixture of native and introduced species would be used to enhance economic and natural resource values for the rehabilitation of burned areas and areas altered by fire suppression. This could allow greater options for resource managers, the possibility of more rapid rehabilitation of sites, and consequently more available forage for wild horses.

Transportation and Roads. The transportation management system would be managed to meet resource goals and objectives that strike a balance between cultural, economic, ecological, and social values in a manner that encourages cooperative management practices. In some locations this could result in continued or increased levels of disturbances to wild horses, while in other locations such effects could be reduced or eliminated. The potential effects would be analyzed on a site-by-site basis.

Off-Highway Vehicles. OHV and mechanized vehicle use would be managed in accordance with Alternative D OHV designations. The BLM would seek cooperative agreements with OHV and mechanized vehicle clubs and other users. Potential effects to wild horses would be the same as described in Alternative A.

Recreation. Tourism and recreation opportunities would be allowed only if consistent with meeting other resource objectives, thereby minimizing any disturbances to wild horses. Development of new recreation sites would also be consistent with the protection of natural values, which would further reduce disturbances to wild horses.

4.14.3.6 Alternative E

Direct Effects

The effect of boundary and acreage adjustments for Objective 1 would be the same as those described for Alternative B, with the following exception: The South Steens HMA would be increased in acreage from its current 127,838 acres to 182,485 acres. This would affect wild horses by opening up more area for the same number of animals as the current AML that would increase the amount of available forage and water. Thriving ecological balance would be easier to maintain within the HMA. The area being returned to active HMA status would be located on the East side of the Steens and would be steep with many small drainages. This would make gathering the horses out of this area difficult with numerous safety hazards. Fences in this area would not keep horses in the HMA. Horses accessing private land and other grazing allotments would create unnecessary gathers that would stress horses. This would use funds that could otherwise be used to gather horses in other HMAs within the Planning Area and postpone those gathers that may affect maintaining thriving ecological balance in those HMAs.

The effects of all other management actions would be the same as those described for Alternative B. Since management emphasizes commodity production, differences in preference mean that any excess forage could be allocated to livestock and/or economically important wildlife rather than to wild horses. Vegetation treatments would benefit livestock and wildlife more than wild horses. Competition for available forage would be increased. Permanent adjustments in AMLs may be necessary as more emphasis would be placed on forage use by livestock.

The effects of Objective 5 would be the same as those for Alternative B with the following exception. Management actions to acquire legal access to critical private water sources would not be conducted. Wild horses currently use these private water sources. Lack of guaranteed legal access to private water sources could make wild horses more susceptible to the effects of drought. If insufficient water would be available during droughts, horses might need to be gathered more often. If horses were excluded from private water sources at some time in the future, herd health and long-term viability could decline.

Indirect Effects

Riparian and Wetlands. Management of existing grazing systems would be directed toward providing maximum use while maintaining or progressing toward PFC. Active restoration of both upland and riparian communities would be pursued to provide sustainable livestock forage, soil stability, and aesthetics, and would not emphasize attainment of an advanced ecological status. Since the management actions would benefit livestock more than wild horses, competition for available forage would be increased and adjustments in wild horse AMLs might be required.

Management of roads in riparian areas would be similar to Alternative A, with emphasis on the development of additional roads to promote commodity production and public uses. Potential effects to wild horses due to disturbance such as temporary displacement, would be more likely to occur under this alternative. If new roads were located in meadow habitat, loss of suitable forage for wild horses could occur.

Woodlands. The effects of management actions would be similar to those described for all other alternatives. The management action to develop markets for the by-products of juniper removal could result in additional disturbances to wild horses in certain locations, and would be analyzed on a case-by-case basis.

Rangelands. Production of native herbaceous and shrubby vegetation for commodity uses within the constraints of other resource management objectives would be emphasized. Areas dominated by cheatgrass or an overstory of sagebrush with a few herbaceous plants would be rehabilitated with species providing optimal forage and vegetative cover. Following treatment of these habitats, more forage would be available, but competition from livestock or wildlife could limit its use by wild horses.

Plant communities dominated by undesirable invasive species or invasive juniper would be rehabilitated with species that would provide optimal forage and vegetative cover. This could increase forage availability for wild horses. Other management actions, including reduction of woody vegetation and management of big sagebrush habitat, would also increase forage availability. Reductions in fuel loading (i.e., reduction of woody vegetation) would decrease the likelihood of catastrophic fire, which would reduce the potential loss of large portions of wild horse habitat.

Noxious Weeds. The management actions would produce similar effects to those described in Alternative A.

Fish and Wildlife. Throughout the Planning Area, some acres of native low diversity vegetation in deer winter range would be interseeded to establish native and other desirable nonnative plant species. Livestock grazing would be used to suppress competition and allow sagebrush to become established. Some increase in forage productivity and availability for wild horses would occur; however, livestock could reduce forage availability for wild horses. Sagebrush does not provide forage for wild horses and to the degree that sagebrush replaces herbaceous species, forage availability for wild horses could decline in the long term.

Opportunities would be identified and undertaken to improve/restore fish and wildlife habitat through wildland fire, other vegetation manipulations, limited fence removal, water developments, etc. These improvements would also benefit livestock. The effects of these actions would be similar to Alternative A; however, competition from livestock might limit the degree to which wild horses could use these improvements, especially if fences around improvements were to exclude horses.

Forage for wildlife would be allocated at management objective levels, but could be increased concurrent with improved range conditions and other improvements. This could result in forage being maintained or a decrease in available forage for wild horses.

Energy and Minerals. Energy and mineral development would be based on the current management framework and only areas closed by Congressional action would be excluded from development. No special designations would be excluded from leasing or entry. Certain stipulations could be applied by an ID team prior to leasing. Potential effects of such activities would be the same as those described for Alternative A. Because of the emphasis on commodity production and fewer closed locations, the likelihood of such effects occurring would be much greater under this alternative than all other alternatives.

Grazing Management. Livestock grazing opportunities would be maximized under this alternative. Depending on the location of increased use, some decline in forage availability for wild horses could occur. Competition between wild horses and livestock for available forage would increase. Since more emphasis would be placed on livestock use of forage, periodic adjustments including decreases in AMLs might be necessary. Although S&Gs would be used to guide management, this alternative does not provide for the emphasis on other resource objectives in allotment planning.

Wildland Fire Management. All wildland fires would be suppressed using appropriate management actions. The effects of these management actions would be the same as those described under Alternative A. Rehabilitation of all burned areas with a mixture of native and desirable nonnative plant species would be used to provide maximum economic production. This would provide suitable forage for wild horses. A plan to manage fires for resource and economic benefit would be developed. Although economic benefits would be prioritized under this alternative, other resources such as big game winter habitat would be likely to receive a similar high priority. Suitable habitat for wild horses would be protected to the degree that horses use the prioritized habitat types.

Transportation and Roads. Transportation and roads would be managed for the benefit of commodity production. Road closures would be the least extensive under this alternative, and maintenance requirements would be greater. New road

development would be encouraged. Under this alternative, the operation and maintenance of roads would be more likely to cause disturbance effects to wild horses such as temporary displacement. The extent of the disturbance would vary depending on the proximity of new roads to habitat regularly used by horses.

Off-Highway Vehicles. Management actions would maximize OHV and mechanized vehicle use. The potential for disturbance to wild horses from OHVs and mechanized vehicles would be highest under this alternative.

Recreation. Increased recreation and tourism would result in greater disturbances to wild horses. To the extent that new recreational developments or increased dispersed recreation occurs in areas regularly used by horses, horses could be permanently displaced from important habitat.

4.14.4 Summary of Effects

Under Alternative A, the objectives would be met with viable populations of wild horses maintained in all HMAs. AMLs would remain unchanged in the HMAs. In some cases, conflicts with livestock production and special status species may occur.

Under Alternative B, AMLs could be maintained within the CMPA and could be maximized within the AMU due to reduced competition from livestock grazing. Viable healthy herds of horses would be maintained. Few conflicts with other resources would occur.

Under Alternative C, the objectives for wild horses would be met and viable populations of wild horses would be maintained. Conflicts could occur on a site-specific basis. Herd health would be improved. The AMLs could be maintained or potentially increased.

Under Alternative D, the objectives for wild horses would be met and viable populations of wild horses would be maintained. Conflicts could occur on a site-specific basis. Herd health would be maintained or improved. The AMLs could be maintained or potentially increased or decreased, based on other resource objectives.

Under Alternative E, AMLs could be decreased because forage would be allocated to livestock before wild horses. Gathering of excess horses might occur more often in order to meet objectives for commodity production. Increased gathering would increase stress on the herds.

4.14.5 Cumulative Effects

Cumulative effects under all alternatives would result in an annual average increase in horse numbers of 20 percent. Over time, horses would be expected to adapt to changes such as increased vehicle use and recreational use. Horses would be expected to adapt to changes in availability and distribution of habitat components of food, shelter, water, and space. Since the horses would be monitored and gathered periodically under all alternatives, they should be able to remain healthy within their existing Herd Areas and in HMAs where boundaries would be modified. Increases in livestock numbers above those described in Alternative E could affect wild horse numbers in the long term and might require a decrease in AMLs.

4.15 Grazing Management

4.15.1 Goals and Objectives

Goal - Manage for a sustainable level of livestock grazing while maintaining healthy public land resources.

Objective 1. Provide for a sustained level of livestock grazing in the AMU while meeting resource objectives and requirements for S&Gs.

Objective 2. Promote viable and sustainable livestock grazing operations in the CMPA while meeting resource objectives and requirements for S&Gs.

4.15.2 Assumptions

This text assumes that, for all alternatives, the "existing conditions" before the application of the management in the Alternative would be with the No Livestock Grazing Area already implemented.

4.15.3 Analysis of Alternatives

4.15.3.1 Effects Common to All Alternatives

Direct Effects

There would be no effects common to all alternatives.

Indirect Effects

ACECs. Managing the existing and designating new ACECs would have no effect on grazing management. Areas that need to be excluded have already been fenced or would be topographically excluded. Dropping the designation on existing ACECs would not have any effect on grazing unless previously excluded areas were opened to grazing and available forage was increased.

Wild Horses. The AML for the three wild horse HMAs would not change throughout the range of alternatives, so wild horse management would have little or no effect on livestock grazing management.

4.15.3.2 Alternative A

Direct Effects

The authorization of TNR grazing use during years of favorable growing conditions would provide additional forage for use by livestock.

Indirect Effects

Water Resources. Water resources would be managed to prevent degradation to water quality so many areas of open water would be unavailable to livestock. The forage that would be excluded along with the water would also be unavailable for grazing by livestock.

Riparian and Wetlands. Management actions developed for riparian and wetlands would have no effect on current livestock grazing management in this alternative.

Woodlands. The reduction of western juniper in big sagebrush, quaking aspen, and mountain mahogany communities would stimulate the growth of herbaceous plant species and provide more forage for livestock. The quality of forage would also improve that would have a direct effect on the health and weight gains of the livestock. Exclosures for post-treatment recovery of quaking aspen and/or mountain mahogany stands that have been invaded by juniper would result in minimal reductions in available forage for livestock.

Rangelands. The application of prescribed fire and mechanical removal of woody vegetation would reduce the dominance of woody species in those areas. Fire treatment areas would require two years of rest from grazing during the growing season, which would result in a short-term forage loss to livestock. Herbaceous species would be released with the reduction in woody species and available livestock forage would eventually be increased. Interseeding of approximately 200 acres of big sagebrush in nonnative seedings may reduce the herbaceous component of the vegetation but would not affect permitted use.

Noxious Weeds. Management actions for the control of noxious weeds would benefit the natural diversity of vegetation communities where noxious weeds have been introduced. By maintaining the natural diversity, livestock grazing would not be affected because the native forage species would still be present.

Fish and Wildlife. Reseeding approximately 9,000 acres of deer winter range with a mixture of sagebrush and other native and nonnative species would probably improve the amount of available livestock forage in the target areas. Other management actions for fish and wildlife would have little impact to livestock grazing.

Visual Resources. Maintaining the existing VRM classes would have little or no effect on livestock grazing or implementation of new range improvements.

Energy and Minerals. Mineral exploration and development may reduce forage production in localized areas within the AMU, but overall, impacts across the landscape would be unnoticable.

Wildland Fire Management. The suppression of all wildland fires could affect the health of plant communities and the quantity and quality of forage available to livestock. Where wildfire reduces woody species from the plant community, forage production would increase. Rest or deferment of grazing following fire and emergency rehabilitation would temporarily reduce available forage in localized areas.

Lands and Realty. The current trend of land acquisition and disposal shows that more acres would become private land and fewer acres would become public land. This trend would generally lower the number of acres and available forage in grazing allotments and consequently lower the amount of revenue gained from grazing public land.

4.15.3.3 Alternative B

Direct Effects

Alternative B would discontinue grazing use in the AMU; therefore, it would preclude the achievement of Objective 1 as stated above. Viable livestock grazing operations would be relatively unlikely in the areas of the CMPA where grazing would continue if grazing levels were reduced to "minimal" as stipulated under Alternative B. Therefore, Objective 2 would also probably not be met.

TNR grazing use would not be authorized. Livestock forage in nonnative seedings could become decadent and forage quality would deteriorate. Grazing use would not exceed the amount of permitted use in the CMPA.

Indirect Effects

Water Resources. The effect of management to improve water quality on grazing management would be the same as in Alternative B.

Riparian and Wetlands. Active and passive grazing management would be initiated in the entire Planning Area to promote further changes in the riparian and wetland areas toward PFC. The changes in grazing use and effects on livestock would be the same as in Alternative B.

Woodlands. Active management to control the advance of western juniper would be in the form of mechanical removal, burning, and cutting and burning. Those actions would stimulate the growth of herbaceous plant species and provide more forage for livestock. Exclosures for post-treatment recovery of quaking aspen and/or mountain mahogany stands that have been invaded by juniper would result in minimal reductions in available forage.

Rangelands. Emphasis on commodity production would be minimized by actions to diversify structure in nonnative seedings. Native species, including big sagebrush would be seeded on approximately 20,000 acres of nonnative seedings, which would eventually reduce the nonnative herbaceous component and also the amount of livestock forage. In the short term, grazing could be increased to suppress herbaceous plant competition and allow for big sagebrush establishment. Wildland fire, prescribed fire and mechanical methods would be used to improve the ecological status of native vegetation communities, which would increase the herbaceous component and benefit livestock grazing.

Noxious Weeds. Management of noxious weeds would be the same as in Alternative B. The effects to livestock grazing would also be the same.

Fish and Wildlife. The interseeding of 35,000 acres of primarily native plant species in deer winter ranges with low species diversity would initially provide an increase in livestock use as they graze the herbaceous species to allow the sagebrush to establish. Once the sagebrush would be established, the amount of herbaceous forage would be reduced through competition. Livestock grazing would eventually drop in the long term. Forage allocations for wildlife would increase and allocations for livestock would decrease.

Visual Resources. Designating the rest of the Planning Area as VRM Classes II and III would retain the existing landscape character in some areas, while allowing moderate changes in others. Range improvement projects that could be designed to meet the VRM Class II and III objectives could be implemented. Major landscape modifications would not be allowed.

Energy and Minerals. A large portion of the Planning Area would be proposed to be withdrawn from mineral exploration and development. The effect of minerals activity in the open area to livestock grazing would be very slight.

Wildland Fire Management. The effects of management actions would be the same as those described in Alternative B except that the benefits to herbaceous plant species and livestock grazing would be realized in the AMU as well as the CMPA.

Lands and Realty. The management actions for acquisition and disposal of lands would not affect livestock grazing on public lands.

4.15.3.4 Alternative C

Direct Effects

Alternative C would reduce grazing use in the CMPA and AMU to "minimal sustainable," which would be interpreted to mean at a level that allows livestock grazing operations to continue to be economically viable.

TNR grazing use would not be authorized. Forage quality would decline in nonnative seedings. Grazing use would not exceed the amount of permitted use in the Planning Area.

Indirect Effects

Riparian and Wetlands. Under this alternative both active and passive measures would be used to manage livestock in riparian/wetland areas. Active measures could also be used to accelerate the progress of riparian/wetland areas to an advanced ecological status. The effects on wild horses would be that additional forage may be available but would probably not be allocated to wild horses in order to protect natural values.

Woodlands. Although the management actions for woodlands would be different under Alternative C than for Alternative A, the potential disturbance effects on wild horses would be the same. The effects of allowing natural and human ignited wildland fire to reduce the influence of western juniper on sagebrush and riparian habitats would be the same as those described for Alternative B. Using prescribed fire as well as wildland fire to reduce the influence of western juniper on sagebrush and riparian plant communities would result in long-term increases in suitable forage for wild horses. The option of using prescribed fire would allow resource managers an additional method to achieve goals and could result in the development of suitable forage for wild horses sooner than would occur with wildland fire only.

Rangelands. Management actions would minimize the emphasis on commodity production of herbaceous and shrubby vegetation and would emphasize natural values associated with diverse composition and structure of native vegetation. If this action resulted in less suitable forage for livestock, increased competition between livestock and wild horses for native plant species could occur.

Areas dominated by cheatgrass or an overstory of sagebrush with a few herbaceous plants would be treated. These habitat types provide less forage for wild horses. Following treatment of these habitats, more forage would be available for use by wild horses.

The rehabilitation of plant communities dominated by undesirable invasive species or invasive juniper would increase forage availability for wild horses. Other management actions, including reduction of woody vegetation and management of big sagebrush habitat, would also increase forage availability. Reductions in fuel loading (i.e., reduction of woody vegetation) would decrease the likelihood of catastrophic fire, which would reduce the potential loss of large portions of wild horse habitat. Management actions would not include the rehabilitation of burned areas, which could reduce forage availability for wild horses in the short term.

Noxious Weeds. The management actions would produce similar effects to those described in Alternative A.

Fish and Wildlife. Throughout the Planning Area, as many acres as possible of low diversity native vegetation in deer winter range would be inter-seeded to establish native plant species. Other desirable nonnative plant species may be used on a limited basis. Livestock grazing could be used to suppress competition and allow sagebrush to become established. This could result in some increase in forage productivity for wild horses, but livestock use could reduce its availability

to wild horses. Sagebrush does not provide forage for wild horses and to the degree that sagebrush replaces herbaceous species, forage availability for wild horses could decline.

Opportunities to improve/restore fish and wildlife habitat through wildland fire and other vegetation manipulations, limited fence removal, water developments, etc. would be identified. The effects of this action would be similar to Alternative A. Any limited removal of fences within HMAs would reduce impediments to allow for greater unrestricted movement of wild horses.

Forage for wildlife would be allocated above management objectives and wildlife populations would be allowed to expand naturally or through limited transplants. This might decrease the likelihood the wild horse AMLs could be increased.

Energy and Minerals. Many special management areas would be withdrawn from various types of energy and mineral development. These areas would include ACECs, RCAs, and areas containing critical habitat for special status species. The potential effects would be the same as those described for Alternative A, but would be reduced to the extent that additional acres would be excluded from project activity.

Grazing Management. Nonconsumptive uses would be emphasized in the AMU while providing for minimal sustainable livestock grazing that meets allotment management objectives. This management action would increase the likelihood that wild horse AMLs could potentially be increased in the AMU. Grazing within the CMPA would be allowed consistent with Steens Act, but nonconsumptive uses as well as natural resource objectives would be emphasized. The AMLs for herds in the CMPA could potentially be increased. Other management actions to meet natural resource objectives, including discontinued use in vacant allotments that have resource conflicts, could increase potential forage availability for wild horses to the extent that livestock use would be decreased.

Wildland Fire Management. Wildland fires that threaten property, human life, or significant resource values would be suppressed. To the extent that these areas coincide with areas used by wild horses, suitable forage and habitat would be maintained. However, it would also be possible that over the long term, such activities could contribute to the occurrence of larger, hotter fires, and a loss of suitable habitat and increased fire cycle and weed invasion. Suppression of other wildland fires would be evaluated and managed with minimal suppression actions if they would be appropriate for resource benefits. All burned areas would be evaluated for rehabilitation actions. A mixture of native plant species would be used to rehabilitate burned areas where natural recovery would be limited. The effects of this management action would be similar to those described under Alternative B.

Transportation and Roads. Transportation systems would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. To the extent that this results in road closures, seasonal closures, and other limitations, disturbance effects to wild horses would be minimized.

Off-Highway Vehicles. The effects of OHV designations on wild horses would be the same as described for Alternative B.

Recreation. Protection of natural values while providing for developed and dispersed types of recreation could reduce disturbance to wild horses. To the extent that recreational use would be directed away from preferred horse use areas disturbance would be reduced. Some disturbance and displacement of wild horses would be expected from existing recreation. In some locations, concentrated recreation use could result in some loss of wild horse habitat but the amount lost would be relatively small. To the extent that dispersed recreation increases and consistently overlaps with high horse-use areas, horses could temporarily alter their use patterns or be permanently displaced.

4.15.3.5 Alternative D

Direct Effects

The management actions under Alternative D relating to the application of livestock management practices, administrative solutions, rangeland projects, and relinquished permits would provide more flexibility in the use of available grazing resources than under Alternatives A, B, and C, and would therefore be expected to increase the utilization of available grazing resources.

Water Resources. The effect of management to improve water quality on grazing management would be the same as in Alternative B.

Riparian and Wetlands. Effects to livestock grazing management would be changes in grazing use including frequency, intensity and season of use. The changes in grazing use could result in a temporary decrease in the quality of forage and available water for livestock but would eventually result in improved riparian and wetland condition. This could result in improved health and better weight gain for livestock in the long term.

Woodlands. The effects of western juniper management would be the same as Alternative C.

Rangelands. The emphasis to diversify nonnative seedings would still be a major management action but the emphasis would be on about 10,000 acres. Desirable nonnative forage species would also be seeded, but the result would probably be a reduction in livestock forage in the areas treated. Wildland fire, prescribed fire and mechanical methods would be used to improve the ecological status of native vegetation communities, which would increase the herbaceous component and benefit livestock grazing.

Noxious Weeds. Noxious weed management would include high quality natural resource lands as well as roads, ROW, and recreation sites. The control methods would include manual, biological and the herbicide application, depending on the site. Grazing would benefit from noxious weed controls on existing infestations and the expanding efforts to detect new infestations.

Fish and Wildlife. Reseeding of 20,000 acres of deer winter range with sagebrush and nonnative species may be beneficial or detrimental to livestock grazing depending on how much herbaceous forage becomes established. Other management actions for fish and wildlife would have little impact to livestock grazing.

Visual Resources. The VRM classes proposed in this alternative would be nearly the same as in Alternative A. The effects to livestock grazing and planned range improvements would be the same as Alternative A.

Energy and Minerals. The effect of minerals activities on livestock grazing would be the same as in Alternative C.

Wildland Fire Management. The effects of management actions would be the same as those in Alternative C.

Lands and Realty. The effects of management actions would be the same as those in Alternative C.

4.15.3.6 Alternative E

Direct Effects

This alternative would maximize the amount of livestock grazing on public land, creating more revenue from grazing fees and more income for grazing permittees. More range improvements would be constructed, creating more jobs for contractors.

Indirect Effects

Water Resources. The effect of management to improve water quality on grazing management would be the same as in Alternative A.

Riparian and Wetlands. Grazing would be implemented in riparian and wetland areas to provide maximum use that would allow livestock to graze higher quality forage and have access to more water sources. Health and weight gain would improve unless the condition of the riparian and wetland areas decreases.

Woodlands. The effects of western juniper management on livestock grazing would be the same as Alternative C except that following the treatments, some of the areas would be seeded. This would provide additional quality forage available to livestock grazing.

Rangelands. Emphasis would be placed on the production of native, herbaceous vegetation as well as restoring and establishing new nonnative seedings, which would increase available forage for livestock. About 2,000 acres of nonnative seedings would be reseeded with sagebrush and other native and desirable nonnative species, but this would have little or

no effect on livestock grazing. Wildland fire, prescribed fire and mechanical methods would be used to improve the ecological status of native vegetation communities that would increase the herbaceous component and benefit livestock grazing.

Noxious Weeds. The effects of noxious weed management would be the same as Alternative D.

Fish and Wildlife. Reseeding approximately14,000 acres of native vegetation and nonnative seeding in deer winter range to native and desirable nonnative species would be beneficial to livestock grazing if the herbaceous component of the seed mix would be greater than the sagebrush component. Allocations for wildlife would not increase, but allocations to livestock could increase if additional forage becomes available.

Visual Resources. A variety of range improvements that could or would affect existing visual resources, depending on the VRM class, would be allowed. Moderate and major landscape modifications would be allowed in some areas.

Energy and Minerals. Mineral exploration and development in the AMU could reduce forage production in localized areas, but impacts across the landscape would be unnoticable.

Wildland Fire Management. The effects of management actions would be the same as those in Alternative C.

Lands and Realty. The management actions focus on keeping Zone 1 lands and disposing of Zone 2 and 3 lands that would increase public land in the high recreation areas but probably lower the acreage in grazing allotments in lower quality recreation areas. Areas available for livestock grazing in Zone 1 areas would benefit but areas in Zones 2 and 3 would not.

4.15.4 Summary of Effects

Implementation of the management actions planned in juniper woodlands, rangelands, and noxious weed control in Alternative A would be beneficial to livestock grazing management primarily due to the expected increase in the amount and quality of livestock forage. The management actions for other resources would not have an effect on livestock grazing management.

In Alternative B, livestock grazing would be reduced in the CMPA and totally removed from the AMU, which would greatly reduce the grazing fees collected and the number of cattle sold each year by ranchers in Harney County. By allowing natural processes to control the ecology of plant communities and by reseeding sagebrush on deer winter range, woody plant species would dominate plant communities and reduce the amount of herbaceous forage plants. Allowing noxious weeds to spread in some areas would also reduce the abundance of herbaceous forage plants.

Livestock grazing would be reduced in Alternative C and TNR grazing use would not be permitted. Actions to improve the ecology of the rangelands and woodlands would make more herbaceous forage available to livestock grazing. Seeding areas to improve deer winter ranges and managing noxious weed infestations would slightly improve forage for livestock in the Planning Area. Range improvements for the benefit of livestock grazing would be constructed only if they meet the VRM class objectives.

In Alternative D, the emphasis to diversify nonnative seedings could reduce the amount of available forage for livestock. The use of fire to manage the ecology of native plant communities dominated by western juniper would be beneficial to livestock forage in the long term. The effects of VRM on the construction of range improvements would be the same as in the existing situation.

Livestock grazing would be maximized in Alternative E with additional revenues being received from grazing fees, more income for permittees, and more jobs for contractors constructing range improvements. Livestock would have greater access to more palatable and nutritious forage resultingin higher weight gains.

4.15.5 Cumulative Effects

Current effects to livestock grazing management would be negligible in Alternative A and when considered cumulatively, would probably not affect grazing in the future.

Cumulative effects to grazing in Alternative B would be negligible because livestock numbers would already be reduced greatly.

In Alternative C, grazing allotments that would be located in areas containing special status plants, special status wildlife, aquatic habitat, and riparian areas may be impacted cumulatively if restrictions would be needed to protect those special

resources. Areas may eventually be closed to livestock grazing that would reduce the permitted use and affect the amount of grazing fees collected. Eventually, the reduction in livestock would affect the grazing permittee financially.

The cumulative effects of other resources on livestock grazing in Alternative D would be negligible and would not affect the permitted use.

The effect of increases in available forage provided by prescribed fire, brush control and other methods in Alternative E, in conjunction with range improvements, would promote grazing use in areas not currently grazed. The cumulative effect may be increases in forage quality and quantity and in permitted use.

4.16 Wildland Fire Management

4.16.1 Goals and Objectives

Goal 1 - Provide an appropriate management response to all wildland fires emphasizing firefighter and public safety.

Objective 1. Implement appropriate fire suppression actions in the WUI or areas identified to possess significant values.

Objective 2. Implement the appropriate management actions upon discovery of wildland fires in areas outside of the designated WUI or areas that possess significant values.

Goal 2 - Restore and maintain the integrity of ecosystems consistent with appropriate fire regimes and land uses.

Objective 1. Implement management actions across the Planning Area that maintain or return plant communities to the historic fire regime where changes to the biophysical environment have not been significant enough to limit the return. Find an appropriate fire regime based on current conditions in areas where the biophysical environment has been significantly changed and return to the historic fire regime would not be possible.

Objective 2. Assess burned areas for appropriate biological and physical rehabilitation activities.

Goal 3 - Identify areas that qualify for suitable fuels reduction treatments to protect urban interface, developments, and other resource values.

Objective 1. Develop a management strategy that specifically identifies the WUI, resource values, and developments throughout the Planning Area.

4.16.2 Assumptions

Areas with significant resource value would be those areas that contain unique or desirable attributes. These values may be related to biologic, physical, ecologic, or socially defined attributes. Under certain conditions, wildfire may adversely affect these attributes. Suppression actions would be taken to protect or minimize the effects to these attributes from wildfire.

The appropriate management response would utilize the most effective suppression actions while considering life safety, property protection, potential resource damage, and suppression costs.

4.16.3 Analysis of Alternatives

4.16.3.1 Effects Common to All Alternatives

Direct Effects

Under all alternatives, wildland fires that burn within or threaten the WUI or areas with significant resource values would be given the highest priority for suppression actions. These actions alone would permit fuels to continue to accumulate in these areas. To reduce the threat of wildfires, these fuels would be treated. The primary goal of the fuels reduction treatments in these areas would be to reduce the threat of catastrophic wildfires. In some instances this would require that the plant community be altered to a condition not consistent with the historic fire regime.

Indirect Effects

Increases in fuels treatment activity throughout the resource area may help to augment the local economy by providing contracting opportunities for local workers. Reduction in the occurrence of large catastrophic wildfire would help to maintain plant communities in conditions beneficial for multiple uses. Fires of lower intensity and severity would be similar to conditions under which many of the native herbaceous and shrubby vegetation evolved. Maintenance of native vegetation would maintain or increase the value of habitat for numerous wildlife species. Forage for domestic livestock would also be enhanced following most fires in native plant communities or in areas seeded with desirable introduced perennial grasses and forbs.

Water Resources. Implement BMPs to reasonably prevent degradation of water quality. Fire management activities would minimize the amount of surface disturbance on all suppression, stabilization, rehabilitation, and restoration activities. The use of aerial retardant detrimental to aquatic communities on streams, lakes, ponds and riparian systems would be avoided. Existing features would be used as fuel breaks where possible.

Soils and Biological Soil Crusts. Implement BMPs on all potential soil surface disturbing activities. Surface disturbing activities would be minimized during suppression, stabilization, rehabilitation, and restoration activities. Natural features would be used, where possible, for fuel breaks in place of constructed fireline if human life safety would not be compromised.

Riparian and Wetlands. Implement or continue management prescriptions designed to maintain, restore and/or improve attributes of riparian/wetland function to maintain or progress toward attainment of PFC. Maintaining and/or improving riparian and wetland function would help to return riparian and wetlands to historic fire regimes and fire return intervals. Riparian and wetlands areas typically burned at a lower frequency than adjacent plant communities. Movement toward PFC would help to reduce the current frequency of fire in these communities and help to provide natural fuel breaks facilitating other suppression actions.

Special Status Species. Manage special status species and their habitats so management actions do not contribute to their decline or listing as T&E. Fire rehabilitation projects would consider the presence, or the potential for presence, of special status species prior to initiation of rehabilitation treatments.

Cultural Resources. Locate significant sites that may be in conflict with other resource uses. Clearances would be obtained prior to any ground disturbing activities related to emergency stabilization and rehabilitation following wildfire. Stabilization and rehabilitation actions would be modified to minimize damage to identified cultural resources.

Visual Resources. Designation of the Steens Mountain Wilderness and the WSAs as VRM Class I would require more intensive planning to ensure that projects designed to restore and maintain the integrity of ecosystems would meet VRM Class I objectives. Methods used for fire control, stabilization, and rehabilitation would be modified in order to meet VRM Class I and II objectives in those areas.

Recreation. Emphasis on dispersed recreation may increase the risk to human life from wildfires because of increased use outside of developed areas. More aggressive suppression actions may need to be taken in areas where there would be normally little to no risk to human life. The presence or absence of the public in remote areas must be determined early on in the decision making process. If there were threats to human life, suppression actions would be taken until the threats would be removed.

Wilderness. The Wilderness act prohibits the use of motorized vehicles within the wilderness. Firefighting within the wilderness would rely on lower impact tactics such as crews, smokejumpers, helicopter repelers, and arial resources. These resources would continue to be effective on smaller fires under favorable weather conditions. However, fires burning under unfavorable weather conditions (high temperatures, low relative humidity, high winds) would have the potential to quickly grow beyond the capabilities of these resources. These fires would have a high probability of threatening the wilderness boundary and adjacent private lands because of the fuel types and loadings.

4.16.3.2 Alternative A

Direct Effects

Suppression of all wildfires would maximize short-term public safety, protection of private lands and areas with important resource values. Short-term firefighter safety would also be increased because initial attack would be given

a priority in this alternative. Areas burned by wildfire would be minimized due to the aggressive suppression of wildfires. Long-term firefighter and public safety could be compromised because of the accumulation of fuels due to suppression. Continued suppression of all wildfires would continue to allow accumulation of fuels throughout the Andrews RA. Wildfires that escape initial attack would have a greater potential to burn larger areas at high intensities causing severe alterations to plant and animal communities in and adjacent to the burned area.

Fuels treatments conducted under this alternative would treat only the highest priority areas where high threats exist to firefighter and/or public safety and private property. With fuels treatments, average fire size in the drier Wyoming big sagebrush plant communities would decrease from current levels. Fuels treatments may have little effect on the average fire size in the higher elevation plant communities because of the aggressive suppression action. However, prescribed fire activity in these plant communities would reintroduce fire into the system, and overall acreage burned would increase over current levels.

All areas burned by wildfire would be evaluated for emergency stabilization and rehabilitation. Native and desirable introduced plant species would be utilized in fire rehabilitation. The decision to use native or desirable introduced species would be based on site-specific characteristics and through the ID Team process. The overall goal of all fire rehabilitation seedings would be to protect the soil from erosion. Seeding would provide large and small grazing animals with additional forage until woody vegetation establishes and grows to the point where competition begins to suppress herbaceous plant growth. The time required for this to occur depends on inherent site conditions and post-fire management. In general, the time required for herbaceous plant dominance would be longer on drier sites.

Fire management under this alternative would have little direct effect on undesirable introduced plant species, especially cheatgrass. The emphasis on suppression would help to reduce the area burned in locations dominated by introduced annuals. However, the emphasis on suppression may lead to an increase in the amount of ground disturbed through suppression actions (e.g., dozer line, engine travel, fire camp, etc.). Equipment, whether local or from out of the area, may potentially transport undesirable plant seeds to these disturbed areas, increasing the risk of weed establishment in these disturbed areas.

Fuels reduction treatments would reduce the influence of woody vegetation on the associated herbaceous understory. Herbaceous plant cover and density would increase after fuels treatment (mechanical and/or prescribed burning). Increases in herbaceous plant cover and density would benefit large and small grazing animals. However, the converse could also occur. Animals that utilize the woody vegetation for part or all of their life cycle would utilize the existing habitat, or would be forced to move to adjacent areas where woody plants still occur. The length of time until woody plants begin to suppress the herbaceous plants would depend on site characteristics and post-fire or treatment management. Drier sites would take longer to attain woody plant dominance than wetter sites.

Indirect Effects

Air Quality. Cooperate with federal, state and local governments on smoke management issues related to prescribed fire. Local and state agencies would be informed on all prescribed fires. Total number of acres in the treatment areas and estimated volume of smoke would be included in the plan.

Riparian and Wetland Vegetation. Establishment of localized riparian tree and shrub source material would help to increase the success of stabilization and rehabilitation of riparian and wetland plant communities burned in wildfire. Localized plant materials would be better adapted to site-specific conditions and their chance of establishment and survival can be greater than other plant material acquired from off-site.

Maintenance of roads and development of additional roads would aid in suppression by providing fuel breaks for most low and moderate intensity fires. The roads would also allow travel of fire fighting equipment to fires.

Woodlands. Removal of western juniper established after 1870 in quaking aspen, mountain mahogany, mountain big sagebrush and old growth juniper woodlands would help to decrease the increasing fuel loads in these communities. Fire intensity and severity would be reduced by cutting these trees, thereby helping to facilitate suppression. Cut areas would also function as fuel breaks, helping to reduce the size of wildfires occurring in the treatment areas.

Prescribed burning in the quaking aspen and mountain big sagebrush plant communities would help to reduce fuel loading and reduce the potential for large wildfires. Treated areas would act as a fuel break in the adjacent untreated vegetation.

Rangelands. Maintaining or improving the ecological status of native plant communities would help to restore the historic fire regime and fire return interval. Brushbeating and/or disking in nonnative seedings would create fuel breaks in continuous vegetation. Fire size would be reduced and suppression actions potentially reduced.

Prescribed fire to reduce the influence of woody vegetation and to release suppressed understory plants would also help to create fuel breaks. The multiple successional stages would act further to restore historic fire regimes and frequencies.

Noxious Weeds. Application of integrated management for the control of noxious weeds would help to reduce their spread following wildfire. Fire management equipment, such as engines, dozers, pickups, etc., coming from off the District would be cleaned prior to deployment on fire incidents. Local fire equipment would be cleaned after operating in locations where large populations of noxious weeds have been identified.

Fish and Wildlife. Reseeding approximately 9,000 acres of deer winter range that would be in unsatisfactory condition with sagebrush and a mixture of native and nonnative species would help to reduce the fire frequency in areas dominated by cheatgrass or other nonnative annual plants. Rates of spread and ultimate fire size would be reduced as the perennial plants begin to dominate the reseeded areas.

Social and Economic Values. The emphasis on fire suppression increases the need for locally available contract firefighting resources, which would increase local economic stability by providing additional jobs and economic opportunities. The Burns Interagency Fire Zone responds to an average of 64 fire incidents a year in the Andrews RA. Multiple incident days would be common and require that contract resources be utilized.

Off-Highway Vehicles. Continued OHV traffic would maintain the existing two-track roads, increasing their effectiveness in limiting the fire spread of low intensity fires. Fire suppression efforts may not require additional construction of firelines and the number of fires that go out without suppression action could increase.

Wilderness. Continued suppression of wildfires throughout the Planning Area would allow fire sensitive woody species to continue to dominate plant communities. The woody vegetation would increase fuel loading and the risk of large catastrophic wildfires. Placing no restrictions on campfires could increase the risk of human caused fires within the wilderness. Utilization of fire rings may help to reduce the threat of wildfire.

4.16.3.3 Alternative B

Direct Effects

This alternative places the lowest priority on fire suppression throughout the Planning Area. Firefighter and public safety would still be the number one priority for suppression. Only fires that directly threaten firefighter or public safety, private property or areas of significant resource values would be suppressed. Other fires would be evaluated for resource benefits and managed accordingly. Fire rehabilitation actions could be greater because of the reduced suppression activity and potentially larger fire size. However, these actions would rely primarily on passive methods where possible. Reliance on native plant species would increase the cost of rehabilitation treatments, but broadcast seeding methods would be used, helping to keep costs down. The rate of recovery in areas where native seedings would be used may be longer compared to desirable introduced perennial plants. This can be important in areas where native perennial seedlings may have to compete with undesirable, introduced annual plant species.

Identification of wildland urban interface (WUI) would help fire managers prioritize suppression response during periods where multiple fires occur. Prioritization of suppression efforts would help assure that firefighting resources would be properly and effectively assigned to fires. Rehabilitation costs may be kept down by quickly suppressing fires that would require extensive post-fire stabilization and rehabilitation. The number of acres converted to undesirable, annual plant communities may also be reduced by this action.

Development of a plan to manage wildfires for resource benefits would also help to prioritize firefighting efforts. Partnerships and cooperative agreements with adjacent private and public landowners would be sought to more effectively manage wildland fires for resource benefits. Cooperation with neighbors would increase the likelihood of utilizing natural barriers and reduce the need for large scale suppression efforts if the fire threatens the management area

boundary. Woody vegetation may increase at the expense of associated understory plants and modify the habitat of many wildlife species. As woody vegetation dominates the sites, understory species may be lost from the plant community or suppressed to the point that the plants could not recover following fire. The dominance of woody vegetation also would increase the intensity of the fire, making suppression difficult if action must be taken.

Indirect Effects

Under Alternative B, the environmental consequences would be similar to those under Alternative A, with the following exceptions:

Soils and Biological Soil Crusts. Allow natural processes to affect soil conditions in the Planning Area except where management would be necessary to arrest excessive soil movement on critical sites. Emergency stabilization following wildfire would only occur on critical sites. Soil loss may occur following wildfire in noncritical sites. Loss of soil from these sites would reduce the potential for rehabilitation in subsequent years.

Riparian and Wetlands. Management of upland vegetation communities to reduce wildland fire intensity and frequency emphasizing native vegetation would help to improve firefighter and public safety and protect private property adjacent to public lands. Management to reduce fire frequency would also help to create an appropriated fire regime consistent with wildland fire and riparian and wetland management. Targeting reaches that would not achieve or progress toward attainment of advanced ecological status within 20 to 50 years may allow other areas to degrade or move away from current conditions.

Reduction in the number of roads could limit access to areas during wildfires. The reduction in number of roads could also increase the necessity for mechanically built firelines or increase the size of fires. Roads would be effective barriers to fire movement under moderate to low fire intensities.

Woodlands. Allow natural processes to determine structure and composition of old growth western juniper woodlands, quaking aspen stands, mountain mahogany stands and mountain big sagebrush plant communities. Only fires that threaten human life and private property where no cooperative agreement exists would be suppressed. Younger western juniper would continue to establish and grow within the old growth stands. As younger trees begin to occupy and grow in the interspace, the risk of larger wildfire increases. Historically one to five trees in a stand were typically affected by fires in old growth stands due to the sparse fuel and poor fuel continuity. With the younger trees occupying the interspace the risk of burning the whole old growth stand increases. A similar effect could occur in the other plant communities, but the rate of western juniper establishment would be faster due to better inherent site productivity.

Prescribed fire would be utilized to reduce the influence of western juniper in quaking aspen, mountain big sagebrush, and riparian plant communities. Only stands with an understory component capable of carrying a fire would be treated with prescribed fire, or have wildfires managed for resource benefits. Plant communities with a dense overstory of western juniper and a sparse understory would be maintained in a woodland until the site would be burned in a catastrophic wildfire. Understory plants would most likely be killed if they were present under these wildfire conditions. Rehabilitation efforts would be required to reintroduce species displaced by western juniper.

Rangelands. Allow natural processes to define the vegetation composition across the landscape. Only wildland fires that threaten human life and private property without cooperative agreements would be suppressed. Fuels would continue to accumulate within the rangelands plant communities until reduced by wildfire. Average fire size would increase as fuels accumulate and vegetation becomes structurally homogeneous. As native species reestablish in nonnative seeding, the risk of fire would increase in these areas. Fire in nonnative seeding would be less frequent than in native rangeland communities. Increase in shrub density and cover would also increase the intensity of wildfires and prescribed fires. Fires suppression actions would need to be adjusted to compensate for these conditions. Fire size may increase as more indirect attack tactics would be implemented.

Special Status Species. Allow natural processes determine habitat for special status plants and animals except for management of critical habitat as identified in a final rule or essential habitat in a recovery plan for federally listed species. Similar effects to rangelands and woodlands would occur. Vegetation would become more homogenous, increasing the risk of larger, more severe fires.

Grazing Management. Emphasis would be on non consumptive uses in the AMU, but minimal sustainable livestock grazing that meets allotment management objectives and S&Gs would be allowed. Similar to Alternative B, the reduced

emphasis on livestock grazing would allow for the buildup of fine fuels above the previous levels. The potential for large fires would increase under this alternative. Flame lengths and fireline intensity would also increase with the increased fuel load. Indirect attack strategies would be used more frequently under these conditions, also increasing average fire size.

Off-Highway Vehicles. Reduced OHV traffic would allow many of the existing two-track roads to revegetate, reducing their effectiveness in limiting the fire spread of low intensity fires. Closing the Steens Loop Road from the Kiger Overlook Road to west of Blitzen Crossing, Fish Creek, Cold Springs and Indian Creek Roads; the WSAs, and WSA cherrystem roads would limit access to areas under fire conditions. Initially these roads would be present, but as some revert back to natural conditions new routes may be inadvertently established during fire suppression efforts. Fire suppression efforts may also require additional construction of firelines and the number of fires that go out without suppression action could increase.

Wilderness. All wildfires that do not threaten human life, private property, or important resource values would be evaluated for resource benefits. Fires that were judged to improve or maintain wilderness characteristics would be managed for resource benefits. Fires that threaten private lands with wildland fire use agreements would be managed on a landscape basis.

4.16.3.4 Alternative C

Direct Effects

The direct effects of Alternative C would be the same as Alternative A in the wildland urban interface. Without mechanical fuels treatments or prescribed fire, fuels would continue to accumulate in the WUI. Fuels accumulation within this area would increase the risk to human life and private property. All fires within this zone would be suppressed with the appropriate management response. Designation of the WUI would occur in the same manner as in Alternative B. Direct effects of fire management activity outside of the WUI would be the same as alternative B. The emphasis would be to manage fires for resource benefits, but protect human life and private property.

Techniques used to stabilize and rehabilitate areas following wildfire would be the same as Alternative A. However, only native plant species would be utilized in the rehabilitation efforts. The effects of using native species would be the same as Alternative B with some possible exceptions. Mechanical seeding equipment may allow for better establishment and survival of seeded species in some cases. Seed drills place the seed beneath the soil surface and can improve the soil-seed connection. Germination and growth following drilling may be better than by broadcast methods.

Indirect Effects

Air Quality. Implement prescribed fire and manage wildland fire while meeting federal and state air quality and opacity standards. Timing and methods of ignition may need to be adjusted to meet air quality and opacity standards. Other factors that would be considered were prescribed and wildfire activity on adjacent units. The decision to manage a wildfire for resource benefits would also consider current and future weather and potential for negative impacts to air quality.

Riparian and Wetland Vegetation. Establishment of localized riparian tree and shrub source material would help to increase the success of stabilization and rehabilitation of riparian and wetland plant communities burned in wildfire. Localized plant materials would be better adapted to site-specific conditions and their chance of establishment and survival can be greater than other plant material acquired from off-site. Manipulation of isolated individuals or stands of woody riparian trees/shrubs would occur to promote regeneration. Treatment of the isolated areas could help to develop a mosaic of multiple successional scales. Treated areas could also provide a fuel break.

Similar to Alternative B, reduction in the number of roads could limit access to areas during wildfires. The reduction in number of roads could also increase the necessity for mechanically built fireline or increase the size of fires. Roads would be effective barriers to fire movement under moderate to low fire intensities.

Woodlands. Same as Alternative A.

Rangelands. Maintaining or improving the ecological status of native plant communities would help to restore the historic fire regime and fire return interval. Brushbeating and/or disking in nonnative seedings would create fuel breaks in continuous vegetation. Fire size would be reduced and suppression actions potentially reduced.

Prescribed fire to reduce the influence of woody vegetation and release suppressed understory plants would also help to create fuel breaks. The multiple successional stages would act further to restore historic fire regimes and frequencies.

Interseeding of native plant species in nonnative seedings would reduce the risk of wildfire in the short term. Use of domestic livestock to reduce competition for sagebrush establishment would further reduce the risk of wildfire by suppressing the growth of fine fuels. However, in the longer term the risk of wildfire may not increase, but the intensity and severity would be greater than in nonnative seedings. The greater fuel load attributed to woody sagebrush plants would increase, the flame lengths and fireline intensity. Strategically placing brushbeat areas would help to reduce fires size and provide a break in the fuel continuity.

Rehabilitation of plant communities that do not meet the desired range of conditions would help to restore the appropriate or desirable fire regime to many areas dominated by introduced annual plants and western juniper.

Noxious Weeds. Same as Alternative B.

Fish and Wildlife. Interseeding native vegetation into low diversity areas and areas dominated by nonnative species would reduce fuel loads in the short term. The physical process of seeding would suppress the fine fuels until establishment occurs. Utilizing domestic livestock to further reduce competition and facilitate big sagebrush establishment would also keep the levels of fine fuel low. Without the accumulations of fine fuels, the risk of fire would be low in these areas. Fires that do start would have shorter flame lengths and lower fireline intensities making suppression less hazardous. However, once native vegetation establishes these plant communities would begin to accumulate fine and woody fuels. The accumulation would increase the flame lengths and fireline intensity in the long term. Areas where native vegetation has reestablished and now dominates would have greater flame lengths and fireline intensities. Fire suppression actions would rely more on indirect attack ultimately increasing fire size.

Special Status Species. Manage big sagebrush habitat to benefit game and nongame species and to meet the DRC throughout the Planning Area. Management actions would help to restore historic plant communities and reestablish appropriate fire regimes. Management of plant communities to meet the DRC would also help to reduce stabilization and rehabilitation actions following wildfire. Plant communities would be dominated by perennials and form a mosaic of multiple successional stages. When wildfires burn, they would burn within parameters tolerated by most plants in these communities. Many would survive the fire and help to repopulate the plant community.

Grazing Management. No grazing would be authorized in the AMU. Elimination of grazing in the AMU would increase the annual accumulation of fine fuels and potentially increase the risk of wildfire. However, grazing would continue within designated areas of the CMPA and ignition of wildfires would be similar to Alternatives A, C, D, and E.

Transportation and Roads. Closing roads would affect firefighting by reducing the amount of access to some parts of the Planning Area. Firefighting resources would need to travel on foot, or construct/reopen roads to access areas to suppress fires. The reduction in roads also reduces the number of existing fuel breaks. These breaks would be most important when fires burn with light to moderate severity. Roads provide an existing break in the fuel continuity. Fire size may increase and the number of fires that go out without suppression action may decrease with the reduction in roads. Additional firelines may also need to be constructed because of the loss of some of the roads.

Off-Highway Vehicles. Reduced OHV traffic would allow many of the existing two-track roads to revegetate, reducing their effectiveness in limiting the spread of low intensity fires. Closing the Rooster Comb, Fish Creek, and Cold Springs Roads, and the road north from Indian Creek Road would limit access to these areas under fire conditions. Initially these roads would be present, but as some revert back to natural conditions new routes may inadvertently established during fire suppression efforts. Fire suppression efforts may require additional construction of firelines and the number of fires that go out without suppression action could increase.

Recreation. Emphasizing undeveloped recreation in the Planning Area may increase use outside of established campgrounds. The probability of wildfire posing a threat to human life would increase across the Planning Area. The presence or absence of people in the vicinity of the fire would have to be determined early on in the incident. If a threat to human life does occur, suppression actions would occur until the threat can be removed.

Wilderness. Same as Alternative B with the following exceptions. Use of fire blankets, fire pans and stoves would reduce the probability of human-caused wildfires. Prescribed fire could occur in areas where past suppression actions have interfered with the natural ecological processes.

4.16.3.5 Alternative D

Direct Effects

Alternative D would exhibit a combination of effects from Alternatives A, B, C, and E. Firefighter and public safety would be the highest priority in fire management decision making. However, fire would be reintroduced into the ecosystem through prescribed fire and wildland fire use for resource benefit (prescribed natural fire). Fires that do not pose a significant risk to firefighter safety, public safety, or private land would be evaluated for wildland fire use.

Areas burned by wildfires would be evaluated for the need for rehabilitation. The greatest priority in the fire rehabilitation projects would be to protect the soil resources. To achieve this, a combination of native and desirable introduced plants would be used to stabilize the soil and return the plant community to a community dominated by perennial plants. Rehabilitation projects would occur on sites with low potential for natural recovery. Desirable introduced plant communities would be established following wildfire in areas dominated by undesirable introduced plants (e.g., cheatgrass) or in areas where the potential for recovery of native plants, residual or seeded, would be low.

Cooperative projects would be developed with adjacent public and private landowners. These projects would increase the efficiency of fuels treatments and work to treat fuels on a landscape scale instead of by geopolitical boundaries.

Cost of fire suppression should be lowest in this alternative. The number of acres burned or converted to a herbaceous plant dominated community would be less than in Alternatives B and C, but more than in Alternative A.

Indirect Effects

Air Quality. Same as Alternative C.

Soils and Biological Soil Crusts. Same as Alternative A.

Riparian and Wetland Vegetation. Same as Alternative C with the following exceptions: desirable nonnative plant species may be used in areas where cheatgrass or other invasive annual and perennial plants have replace native vegetation; the desirable nonnative vegetation would be a transitory stage; and once the desirable plants have established, native vegetation would be reintroduced to the area.

Woodlands. Same as Alternative C with the following exception: markets for byproducts of western juniper removal would be encouraged; utilization of this resource would reduce the fuel loads on sites where western juniper was cut to restore mountain big sagebrush plant communities; and soil compaction could occur in areas where western juniper was removed by mechanized equipment.

Rangelands. Same as Alternatives A and C with the following exception. Desirable nonnative species could be used in the effort to reduce the influence of undesirable annual plant species. The establishment of nonnative perennial plants would help to reduce the occurrence of wildfire. However, these areas would have a slightly different fire regime that areas dominated by native vegetation. The average time between fire events may be slightly longer in areas dominated by nonnatives species than those where native species dominate.

Noxious Weeds. Apply integrated management for the control of noxious weeds. Priority would be given to high quality natural resource areas. Emphasize control of weeds on disturbed areas. Control of noxious weeds prior to fire would help to reduce their spread following a fire event. All burned areas would be evaluated for the presence of noxious weeds and appropriated management implemented.

Fish and Wildlife. Same as Alternative C with the following exceptions. Desirable nonnative species could be used in an effort to reduce the influence of undesirable annual plant species. The establishment of nonnative perennial plants would help to reduce the occurrence of wildfire. However, these areas would have a slightly different fire regime than areas dominated by native vegetation. The average time between fire events may be slightly longer in areas dominated by nonnatives than native areas.

Special Status Species. Same as Alternative A.

Grazing Management. Provide sustainable livestock grazing in the Planning Area that meets allotment management objectives, S&Gs, and the Steens Act in the CMPA. Fine fuels would be reduced in grazed allotments. The reduction

in fine fuels would help to limit fire spread, especially in low to moderate intensity fires. In some situations grazed pastures may be used as fuel breaks during wildfires. This would reduce the need for constructed fire control lines. However, the reduction in fine fuels would also help to alter the fire regime for these areas. The frequency of fire may be less than in areas where no grazing occurs.

Transportation and Roads. Closing roads would affect firefighting by reducing the amount of access to some parts of the Planning Area. Firefighting resources would need to travel on foot, or construct/reopen roads to access areas to suppress fires. The reduction in roads also reduces the number of existing fuel breaks. These breaks would be most important when fires burn with light to moderate severity. Roads provide an existing break in the fuel continuity. Fire size may increase and the number of fires that go out without suppression action may decrease with the reduction in roads. Additional firelines may also need to be constructed because of the loss of some of the roads.

Off-Highway Vehicles. Same as Alternative A.

Wilderness. Fire would be allowed to play its natural role, excluding areas along the wilderness boundary where life and property would be at risk. All lightning fires would be considered for wildland fire use. Wildfires would be confined or contained within natural barriers unless additional measures would be necessary to protect life/property values. Prescribed fire would be allowed if needed to maintain the natural condition of a fire dependent ecosystem or to reintroduce fire where past strict wildfire control measures have interfered with natural ecological processes.

4.16.3.6 Alternative E

Direct Effects

The effects of Alternative E would be similar to those under Alternatives A, except that a greater emphasis would be directed toward contract firefighting resources to support suppression actions and local economics.

Indirect Effects

Air Quality. Same as Alternative C.

Soils and Biological Soil Crusts. Same as Alternative A.

Riparian and Wetland Vegetation. Same as Alternative A with the following exceptions: existing roads would be maintained to promote commodity and public use within established laws and regulations; maintaining the roads would help firefighting resources access areas where fires occur; and suppression action would be quicker as roads may be used as firelines in some situations.

Woodlands. Same as Alternative D.

Rangelands. Same as Alternatives D.

Noxious Weeds. Same as Alternative D.

Fish and Wildlife. Same as Alternative D.

Special Status Species. Same as Alternative A.

Grazing Management. The emphasis on grazing in this alternative would reduce the fine fuels throughout the Planning Area. Reduction in fine fuels would reduce the average size of fires throughout the Planning Area in the short term. Increased grazing pressure may shift some plant communities toward dominance by introduced annual plants. Once this occurs grazing may be ineffective at modifying fuels. The frequency of fires in communities that have experienced a shift to annuals would increase. Fire size would ultimately increase in the long term.

Transportation and Roads. Keep the entire Steens Mountain Loop Road open and retain motorized access along all other currently open routes. Vehicles would be allowed to travel 100 feet from the centerline along specific routes. Keeping the Steens Loop Road open would help to reduce response time to some fires located on Steens Mountain. Fire size may be reduced in situations where response time would be reduced. Allowing vehicular traffic 100 feet off the centerline

of some routes would help to expand the fire control capabilities of these routes. Traffic would help to reduce vegetation and fire spread.

Off-Highway Vehicles. Same as Alternative A.

Wilderness. Same as Alternative A.

4.16.4 Summary of Effects

The protection of human life has the highest priority in all fire management activities. Until life safety can be assured, no other activities would be initiated. Within the WUI all fires would be suppressed to assure that life and private property would be protected. However, fuels treatment activities, such as mechanical thinning of western juniper or brushbeating of big sagebrush would help to reduce the threat of wildfires. Prescribed fire would be utilized in special situations within the WUI. Outside of the WUI fires would be evaluated for resource benefits once the safety of firefighters and the public would be assured. Past fire management actions have concentrated on suppression of all wildfires. This coupled with other management actions has allowed fuels to accumulate throughout the Planning Area.

Alternative A would continue with current fire management actions. All wildfires would be suppressed, exacerbating the fuel accumulation that has occurred. Alternative B places the lowest priority on fire suppression throughout the Planning Area. Under this situation wildfires would be managed for resource benefits. However, the threat of large fires would still be high because of the continued build up of fuels. No mechanical treatments would be initiated to reduce fuel loading and prescribed fire could only be done in areas where there would be no threat to human life or private property. Alternatives C, D, and E all utilize a combination of mechanical, prescribed fire, wildland fire use, and fire suppression to achieve resource and fire management goals. Alternatives D and E would also encourage the development of local markets for the by products of the fuels treatment actions. Removing the cut plant material would help to further decrease the risk of wildfire in the treated areas.

Outside of the WUI, all fires would be evaluated for resource benefits. In cases where the fire would be believed to be burning within the historic fire regime or meeting management objectives the fire would be managed to accomplish those goals. Alternative B, C, D, and E all have a wildland fire use component. Adjacent landowners would be consulted and coordinated with prior to implementation of a wildland fire use program. Agreements and partnerships would be sought to reduce the conflicts. Wildland fire use would reduce the number of acre needing fuels treatment. However, the number of acres treated each year would be difficult to predict. Wildfires in the Andrews RA burn approximately 12,000 acres a year. Many of these fires burn during July and August when there would be a severe risk to human life because of hot dry weather and severe fire behavior.

Restoration or adjustment of fire regimes through management actions would be accomplished by modifying the present vegetation. Past management actions over the last ten years within the Planning Area have treated approximately 50,000 acres. Fire regimes within these areas have been adjusted to reflect more frequent, less intense fire. Over the next 15 to 20 years at least 10,000 acres of western juniper woodlands (established after 1870) must be treated to restore and maintain a 35 year fire return interval. This fire return interval would be at the upper end of the historic range for the mountain big sagebrush and mountain shrub plant communities. Each alternative would be capable of achieving this goal. However, Alternatives B and C rely more heavily on passive methods, and climatic conditions would greatly affect the success of these alternatives.

All fires would be evaluated for stabilization and rehabilitation. Stabilization and rehabilitation actions would most likely occur on fires greater than 1,000 acres unless there would be a special resource or social value at risk. Excessive soil loss, weed invasion, or significant modification of T&E species habitat would be examples of situations where stabilization and rehabilitation actions may be initiated on fires smaller than 1,000 acres. Stabilization and rehabilitation actions would be similar in Alternatives A, D, and E. In these alternatives a combination of native and desirable introduced perennial plants would be used to stabilize and rehabilitate the site following fire. Alternatives B and C would utilize native species in the stabilization and rehabilitation process. Alternative B would use passive methods for rehabilitation. Seeding would be done from the air with no seedbed preparation. Alternative C may utilize drills, where appropriated to place seed in the ground.

4.16.5 Cumulative Effects

Identification of the WUI within the Planning Area would help to provide fire management with a way to initially prioritize fire suppression efforts. Designation of WUI would include a wide variety of locations. The WUI would

include isolated structures/improvements outside of the boundaries of established towns. The fire management staff would work cooperatively with BLM Staff and Private Landowners to help designate these areas within the Planning Area. Continued suppression within the WUI would allow fuels to build in that area without treatment. The risk to human life and private property limits the ability to apply fire to these areas, making mechanical treatments necessary to reduce fuels in these areas. Alternatives where mechanized equipment would not be utilized would allow fuels to build in these areas, exacerbating the current fuels problem and increasing the risk of large catastrophic fires. Western juniper would also continue to increase its range and density and cover within current stands if not treated. Western juniper has replaced or would be in the processes of replacing big sagebrush across approximately 350,000 acres of the Planning Area. Alteration of the sagebrush plant communities has had an effect on many plant and animal species that would be found in these plant communities. Continued expansion of western juniper would cause a further reduction in sagebrush plant communities and loss of habitat. There would also be an overall increase in the amount of bare ground or exposed mineral soil. This would increase the risk of soil movement. Loss of soil would reduce future site productivity and potential for the site to respond to management actions. Increases in erosion may also have impacts on adjacent stream systems and water quality.

Treatment of at least 10,000 acres a year would be sufficient to restore a fire regime that resembles the historic one and would be appropriate for current desired vegetation conditions over much of the Planning Areas. Treatments over time would result in a mosaic of multiple successional stages across the landscape. As the number of acres and years since initial treatment increase, there should be an increase in the occurrence of wildland fire use in areas where threats to human life and private property would be low. This would indicate that the vegetation and subsequently the fire regime would be approaching the appropriate conditions. Post-fire stabilization and rehabilitation efforts should decrease as the vegetation approach this condition. However, there would still need to be some type of treatment in areas where threats to human life and private property continue where no cooperative agreements would be in place.

4.17 Lands and Realty

4.17.1 Goals and Objectives

Goal - Provide lands, interests in land, and authorizations for public and private uses while maintaining and improving resource values and public land administration.

Objective 1. Retain, consolidate and/or acquire land or interest in land with high public resource values to promote effective administration and improve resource management. Make available for disposal public land meeting the disposal criteria contained in Section 203(a) of the FLPMA.

Objective 2. Meet public, private, and federal agency needs for realty related land use authorizations and land withdrawals including those authorizations necessary for wind, solar, biomass, and other forms of renewable energy development.

Objective 3. Acquire legal public or administrative access to public land.

Objective 4. Eliminate unauthorized use of public lands.

4.17.2 Assumptions

The Land and Realty Program would be a support function of other resource programs. Consequently, effects to the program would be a direct result of the emphasis of other resource programs. Land tenure actions would be directed to a point ranging from fully developing commodities to preserving natural values as dictated by other resource programs.

Lands identified for disposal would be known as Disposal-Zone 3 lands and would be displayed on Maps 2.4, 2.5, 2.6, and 2.7. Any of the land identified as suitable for disposal could be transferred from federal ownership during the life of the plan. Disposal would usually be by sale or exchange, although other methods would be authorized. See Appendix J, Land Tenure Adjustment Criteria and Legal Requirements for additional details on land tenure adjustment.

All land tenure adjustment actions, realty use authorizations, and other lands activities would be contingent upon site-specific review and inventory for resource values in accordance with the NEPA.

Proponents of land exchanges and other disposals commonly desire lands that would be suitable for commodity producing activities such as conversion to seedings for livestock grazing, and development of rural residences and small ranches. Thus, it would be assumed for purposes of analysis that land disposals would generally result in commodity production.

Any acquired land or acquired interest in land would be managed for the purposes for which it was acquired, or in the same manner as adjacent or comparable public land.

Conformance with the land use plan would be only one factor to be considered in the decision to undertake a land tenure adjustment action. Although various lands would be identified through the land use plan for disposal or acquisition, many may never be considered for action due to resource issues, or other factors. Generally, it would not be the intent of the alternatives to portray new large scale initiatives to acquire or dispose of all lands within a given zone, unless otherwise stated in the alternative. Rather, the alternatives describe different options and opportunities to direct and prioritize the use of lands actions.

The Land Tenure Zones not only apply to the retention, acquisition, and disposal of the surface estate, but also to the mineral estate or other partial interests of the United States.

Section 503 of the FLPMA provides for the designation of ROW corridors and encourages use of ROWs in common to minimize environmental effects and the proliferation of separate ROWs. BLM policy, as described in BLM Manual 2801, would be to encourage prospective applicants to locate their proposals within corridors. However, when ROW proposals would be in conflict with designations such as WSAs and ACECs, these areas should be avoided.

Major project development in an unoccupied corridor east of the Alvord Desert, through Sand Gap, and west from Long Hollow across Catlow Valley and the Basque Hills (Portland Power and Light [PP&L]/Bonneville Power Administration [BPA] Proposed Route) would cross portions of WSAs and likely impair wilderness values. Further, there would be no corridor designations in adjacent Planning Areas where the PP&L/BPA Proposed Route crosses these areas. However, this corridor remains a Priority 2 corridor identified by the Western Utility Group where development might be expected in three to five years. Approval of major ROW development in these areas would require Congressional release of the WSAs from further consideration for wilderness and possibly amendment of land use plans in neighboring Planning Areas.

ROWs and other land uses including those necessary for renewable energy development would be recognized as major uses of the public lands and would be authorized pursuant to sections 302 and 501 of the FLPMA.

Applications for ROWs, realty and renewable energy use authorizations would be processed in a timely manner, on a case-by-case basis, in compliance with the NEPA process. In accordance with current policy, authorizations may not be issued for any use that would involve disposal or long-term storage of materials that could contaminate the land (i.e., landfills, hazardous waste disposal sites, etc.).

U.S. Department of Interior policy as prescribed in Departmental Manual 603.1.1 would be that all withdrawals of land would be kept to a minimum and would be available for other public purposes to the fullest extent possible, consistent with the purpose of the withdrawal.

Section 205 of the FLPMA authorizes the Secretary to acquire lands and interests in lands consistent with the mission of the department and with applicable departmental land-use plans.

Action would be taken on all unauthorized use as it would be discovered; however, in some cases the trespasser could not be identified, or the trespass would be otherwise unsolvable. In such cases, the BLM would make every effort to abate the trespass and restore and stabilize the lands.

In all cases, trespassers would be liable for the costs of resolving an unauthorized use, including fair market value for use of the land, administrative costs, and cleanup and restoration costs.

4.17.3 Analysis of Alternatives

4.17.3.1 Effects Common to All Alternatives

Direct Effects

There would be no effects common to alternatives.

Indirect Effects

Special area designations, special status species, cultural and historical sites, fish and wildlife habitat, wetland/riparian habitats, water and fisheries issues and other resource values generally constrain lands and realty activities by limiting the lands available for exchange or disposal in any zone; reducing the demand for the number and type of realty use authorizations and withdrawals; restricting the ability to construct or relocate roads for legal access; and eliminating options of authorization or conveyance of land to resolve a trespass. At a minimum, these resource values may require mitigation or reroute of an activity. At a maximum, they may prohibit the activity altogether.

Other resource management actions that would improve the quality and productivity of the public lands, particularly for commodity production, may have an indirect effect on land tenure because they may increase the market value of public lands. Commodity producing activities such as mining, tourism, and other development, also have an effect on the program by creating demand for realty use authorizations and legal access to public lands.

4.17.3.2 Alternative A

Direct Effects

Under this alternative, land tenure adjustment would be limited to land identified for sale or exchange in the existing Andrews/Drewsey Land Tenure Adjustment Andrews MFP Amendment and for a portion of the lands, the Three Rivers

RMP. Lands in Zone 1 containing important public values would be protected from disposal, but there would be no flexibility in this zone to exchange or sell public lands; therefore, opportunity and ability would be limited to acquire lands with high public values and to resolve long-term inadvertent and unauthorized uses, survey errors or hiatuses. Land sales and exchanges would also be limited by lack of land identified for sale or exchange because many of these lands have been previously conveyed. Land sales and other disposals in Zone 3 would be considered only after the possibilities for exchange have been exhausted, further limiting disposal opportunity and expediency. Disposal of lands for community expansion or public purposes would need to be consistent with the appropriate land tenure zones.

Lands may be acquired in any zone on a case-by-case basis. This has the potential of wasting valuable acquisition funding and effort in areas containing little public land and resources because there would be no focus or priority for acquisition.

Under this alternative the historical trend of a net loss of public lands in Harney County (See Cumulative Impacts) would be expected to continue into the future. This trend would be expected to diminish somewhat as public lands would be disposed of over time; thus, fewer lands and opportunities would be available. The overall effect would be a slight net loss of public lands in the Planning Area over the life of the plan, though not as much as during the last 20 years, resulting in a corresponding increase in county tax revenues. Some of these conveyed public lands would be converted to alfalfa, crested wheatgrass or other development that would not have occurred in public ownership. Conversion of lands to a higher commodity value should result in a higher assessed value on the land, further improving county tax revenues.

Overall, there would be opportunity for consolidation of both public and private lands through exchanges, sales, and acquisitions, although somewhat limited by the availability of disposal lands and inflexibility of this alternative.

Most known special resource values would be included in the retention zone (Zone 1), and would therefore be protected from disposal actions. Special resource values included in an exchange or disposal zone (Zones 2 and 3) would be identified and considered during site-specific review of land tenure proposals. In the case of exchanges, special resource values in these zones may be vulnerable to disposal, but would be weighed against the resource values to be gained in the exchange.

Alternative A continues the designation of corridors on approximately 340 miles of public land and provides limited designations of exclusion/avoidance areas. This includes all corridors identified in the Western Utility Group's Western Regional Corridor Study. There would be no immediate effects to the continued designation of public land for ROW corridors. Specific effects would be analyzed when new projects would be proposed. The long-term effects of corridor designation would be the centralizing of facilities, which would confine surface and visual disturbance, as well as other effects, to existing corridors and ROWs; however, this could make critical energy and communications facilities more vulnerable to destruction through terrorist activities or natural disasters.

Consideration of withdrawal actions, an airport lease at Fields, and other land use and ROW authorizations including those necessary for renewable energy development would be handled on a case-by-case basis and deferred to a site-specific review and analysis upon receipt of definitive proposals.

Implementing Alternative A would continue the existing direction of dealing with access issues on a case-by-case basis as specific needs or opportunities arise, with emphasis on securing access for administrative purposes. Implementation of this alternative would promote access for BLM administered lands, but efforts to secure public access would be limited. Under this alternative, little focus or direction would be provided to proactively acquire access because there would be no prioritization or identification of access needs in existing planning documents.

Under Alternative A, unauthorized use would be dealt with on a case-by-case basis, consistent with existing land use plans. This alternative provides flexibility in most cases to terminate or authorize the use, except for conveyances of land, to resolve an unauthorized use. Conveyances would be limited by the land tenure provisions in existing planning documents.

Indirect Effects

Although exclusion/avoidance areas would be limited under this alternative, Congressional and administrative designations, special status species habitats, and other important values would generally be protected from development due to their inherent restrictions. The primary effect of limited exclusion/avoidance designations would be the inability of the plan to provide ROW, renewable energy and other land use project planners with a clearinghouse designation for determining the location and severity of various designations and restrictions existing in the Planning Area. This may result in re-engineering, rerouting, or mitigation of a project with possible effects to sensitive resources when relocation would not be possible. Since only minor areas would be designated avoidance and exclusion zones, this alternative provides the least known constraints on realty use authorizations.

4.17.3.3 Alternative B

Direct Effects

Under this alternative, all public lands would be retained in federal ownership with emphasis on acquiring lands with natural values. All lands would be protected from commodity-producing activities likely to occur if conveyed out of public ownership. There would be no exchanges, thereby limiting the opportunity and ability to acquire lands with natural values.

Since the entire Planning Area would be considered Zone 1, lands may be acquired by purchase or donation anywhere in the Planning Area on a case-by-case basis. Under this alternative with no zones to provide basic direction, special resource values would be the only factor focusing and prioritizing acquisition.

There would be a net gain of public lands in the Planning Area. Since all acquisition would be by purchase or donation with no disposal of public lands, there would be a net loss of county tax revenues from private land acquisition. An offsetting effect on tax revenues may result when fewer public lands would be available for disposal; more conversion and development of existing private lands may be expected, resulting in higher assessed values on those lands.

Overall, there would be some consolidation of public lands by fee purchases but no such opportunity for private lands due to the prohibition on disposals and the inflexibility of this alternative.

In this alternative, the protection of natural values places a prohibition on land disposal actions, commodity withdrawals, and realty use authorizations; thus the opportunity to abate an unauthorized use by these means or to provide lands for community expansion and public purposes would not be available.

Under this alternative, the entire Planning Area would be considered a ROW, realty, and renewable energy authorization exclusion area and no corridors would be designated. Implementation of this alternative would not meet management goal objectives. Only new authorizations would be allowed that provide reasonable access to nonpublic lands. This would primarily be limited to small scale ROWs, mostly for existing roads, ways, and trails. The most likely effect of this alternative would be an increase in unauthorized use and illegal activities because the public would be unable to utilize public lands through legal means. Without some level of control, these uses could potentially damage sensitive resource values.

Disallowing leasing and reopening of the Fields airstrip may force aviators to land in unsafe, undeveloped areas, thereby causing new resource damage and creating safety hazards such as landings on public roads and highways. Without a legal airstrip, fewer aircraft may be in the area, thereby minimizing noise and other effects. Rejecting the lease proposal would also minimize any potential liabilities to the United States associated with operation and maintenance of the airstrip.

Since the entire Planning Area would be withdrawn, except as noted above, there would be no effects from mining, energy and minerals, military activities, and other commodity production. The primary thrust of this alternative on access would be to control and limit public access for the protection of natural values. Road construction to provide legal access around private lands would not be authorized; existing roads that provide public access would be closed. Closed roads would be allowed to reclaim naturally, slowing restoration of the land affected by the road. However, if slow restoration results in unstable soils, erosion, weed infestations, and other resource degradation, limited reclamation and remediation of the problem would be undertaken. Scenic and conservation easements to protect natural values would also be authorized under this alternative where fee acquisition would not be possible.

Under this alternative, all unauthorized uses would be terminated and none would be authorized. No disposals would be made to accommodate any uses. Therefore, no flexibility would be provided for options to resolve situations. Facilities and structures would be removed, but otherwise restoration of lands would be by natural processes unless resource degradation necessitates active restoration. This may result in slow restoration of the lands with possible resource degradation in some areas. In most cases, however, natural values would be enhanced by this alternative.

Indirect Effects

Under this alternative protection of natural values, such as special status species, wildlife habitat, and Congressional and administrative designations, places an outright prohibition on most types of ROW, realty, and renewable energy use authorizations and disposals.

4.17.3.4 Alternative C

Direct Effects

Under this alternative, the major emphasis of land tenure adjustments would be on the retention/acquisition of land with natural or cultural resource values while providing for limited disposal actions in some areas. All lands in Zone 1, 1A, and 1B would be retained in public ownership and would be protected from disposal, and thus, commodity-producing activities. There would be no flexibility in these zones to exchange or sell public lands, limiting the opportunity and ability to acquire lands with important natural values and to resolve long-term, inadvertent unauthorized uses, survey errors, or hiatuses, or to provide lands for community expansion and public purposes. Limited exceptions to this disposal prohibition would exist in Zone 1B where exchanges may be made that further the purposes and objectives of the Steens Act. Exchange of lands in Zone 2 and 3 would also be allowable, providing some opportunity for exchanges. Sales and other disposals would be limited to Zone 3. Exchange of lands to resolve a trespass situation would be allowable in Zones 2 and 3, but the exchange must serve to acquire lands with important natural values. These disposal opportunities may result in loss of some lands with natural or public values.

Disposal of lands for community expansion or public purposes would be limited to Zones 2 and 3 because a disposal must be consistent with the appropriate land tenure zone.

Land acquisition would be focused at Zones 1, 1A, and 1B. Some exceptions to acquire lands containing natural values would be available in Zones 2 and 3, but must be accomplished by purchase or donation in these Zones. Exchanges to acquire lands in Zones 2 and 3 would be prohibited because exchanges have a generally higher level of processing cost,

effort, and timeframes than do purchases or donations. Acquisition of less than fee interests would be further focused to Zones 1, 1A, and 1B by prohibition of less than fee acquisitions in Zones 2 and 3.

In this alternative, most known special resource values would be included in the retention zones (Zone 1, 1A and 1B). In addition, large blocks of public lands without special values were also zoned for retention (Zone 1). Thus, without flexibility, Zones 1 and 1A provide absolute constraints on land disposal actions. Constraints on land exchanges by other resource values would be somewhat less in Zone 1B where flexibility to exchange lands would be provided by the Steens Act. All disposal actions would be subject to site-specific inventory and screening for the existence of any special resource values that may have been unknown or overlooked at the time of the RMP development. These values would be considered in the final decision to dispose of the land. In the case of exchanges, special resource values may be vulnerable to disposal in some zones, but would be weighed against the resource values to be gained in the exchange.

There would be a slight net gain of public lands in the Planning Area with a corresponding loss in county tax revenues, since private lands and values acquired would exceed the values of public lands being disposed.

Overall, there would be some opportunity for consolidation of both public and private lands, which would be somewhat limited by the availability of disposal lands and inflexibility of this alternative.

Under this alternative, corridor designations would be limited to those that have existing major power transmission lines and primary county roads and state and federal highways. Corridor designations on public land total 246 miles. The unoccupied PP&L/BPA proposed route would not be designated. This would leave two alternative north/south corridors and a single east-west option through the Planning Area.

Under this alternative, major facilities and projects would be required to be sited within corridors. In some situations this may require costly route changes in adjacent Planning Areas to bring the alignment of a facility in line with the designated corridor in the Planning Area. These reroutes could also result in additional surface disturbance and effects to visual resources, and proliferation of separate ROWs.

A large portion of the Planning Area, 995,037 acres, would be considered a ROW, realty, and renewable authorization exclusion area where a large variety of land uses, no matter what the effects, would be prohibited. Generally, areas where the most demand exists for this type of authorization (i.e., areas of existing human influences and activity) would remain open or would be in avoidance areas where authorizations would be possible but would be heavily mitigated if alternative locations were not available.

If a valid application were received, the existing Fields airstrip would be leased and reopened for public use. This would provide aviators a safer, more centralized place to land and take off. It could also improve public safety and limit resource damage by reducing aircraft operations in undeveloped areas. Reopening and improving the airstrip could also result in increased aircraft traffic and related visitation to the area. It would have local effects such as increased noise, soil and vegetative disturbance, and possible fuel or pesticide spills from aircraft spraying operations. Since the airstrip would be in a retention zone, the airstrip and the effects of leasing would continue indefinitely but would also provide the lessee with some assurance of long term tenure. It could also expose the United States to hazardous materials, and safety and other liabilities associated with long-term operation of such a facility on its lands.

Generally, the primary effect of this alternative would be that basic infrastructure and necessities such as residential roads and driveways, a rural airstrip, utility distribution service, filming and short-term storage sites would be allowable, while large scale projects and activities outside of corridors such as major transmission lines, energy development, and military maneuvers would be limited.

Demand for realty use authorizations would decline under this alternative since commodity production such as mining, tourism, and other development would be limited.

The actions and effects of this alternative related to legal access acquisition would be that closed roads would be actively reclaimed, speeding recovery and stabilization of the land affected by road disturbances.

This alternative provides a limited option to resolve agricultural or occupancy trespass by exchanging the affected lands for nonpublic lands with significant natural or cultural values, where the exchange conforms with the land tenure provisions of this alternative. This option, in limited circumstances, could enhance acquisition and protection of natural values. It would be possible that sensitive resource values could be lost in such an exchange.

Indirect Effects

Under this alternative protection and enhancement of natural values (e.g., special status species, wildlife habitat, visual resources and Congressional and administrative designations) limits many types of ROW, realty use, and renewable energy authorizations and disposals. Basic infrastructure and public needs could be accommodated while large scale realty development and land uses would be restricted.

4.17.3.5 Alternative D

Direct Effects

Under this alternative, the major emphasis of land tenure adjustments would be on the retention/acquisition of land with high public resource values while providing for balanced disposal options through sales, exchanges, and other types of disposal. Lands in Zone 1A would be protected from any form of disposal. There would be flexibility in Zone 1 to exchange public lands for a specific set of public resource values. In addition, exchanges that further the purposes and objectives of the Steens Act would be allowable in Zone 1B. More lands would be available for exchanges in Zone 2 and 3, providing additional opportunity for exchanges outside the CMPA. Sales and other disposals would be generally limited to Zone 3, but could be used in any zone except 1A to resolve long term, inadvertent unauthorized use of public lands. This additional disposal capability may result in losses of some lands with natural or public values.

Lands for community expansion would be available by exchange in Zone 2B and for public purposes in Zones 2 and 3. However, disposal of Zone 2B lands would only be available by exchange for specific private lands in Zone 1A and contingent upon county rezoning of the 2B lands.

Under this alternative, most known special resource values would be included in the retention zones (Zone 1, 1A, and 1B). The constraints of special resource values in Zone 1 and 1B would be relaxed by the flexibility included in this alternative. Only in Zone 1A would be a prohibition placed on any form of land disposal. Regardless of the zone, all disposal actions would be subject to site- specific inventory and screening for the existence of any special resource values that may have been unknown or overlooked at the time of the RMP development. These values would be considered in the final decision to dispose of the land. In the case of exchanges, special resource values may be vulnerable to disposal in most zones, but would be weighed against the resource values to be gained in the exchange.

Acquisition effort and funding would be focused primarily at Zones 1, 1A, and 1B. Exceptions to acquire fee estate in lands containing specific public values would be available in Zone 2 but must be accomplished by exchange or donation. Acquisition of less than fee interests would be further focused to Zones 1A and 1B by prohibition of less than fee acquisitions in Zones 1, 2, and 3.

Generally, over the long term there would be no expected change in the ratio of public lands to private lands in the Planning Area due to a balanced variety of land tenure actions including both acquisitions and disposals. Due to additional public land disposals in neighboring Planning Areas there would continue to be an overall net loss of public lands in Harney County consistent with the historical trend. For this reason county tax revenues would be expected to increase. Property tax revenues would be further enhanced by disposal of public lands, some of which would be converted to commodity production such as seedings or alfalfa fields under private ownership, which should result in higher assessed values on those lands.

Overall, there would be balanced opportunity for consolidation of both public and private lands while protecting, acquiring, and enhancing important public values.

In this Alternative, proponents for all large scale facilities would be encouraged to site their facilities in the corridor. This would provide additional flexibility if facilities in existing corridors would be incompatible with those proposed, or would be otherwise unfeasible for location within a corridor. It would also be in compliance with BLM policy, which encourages applicants to locate their facilities in a corridor.

A total of 870,912 acres would be designated a ROW and realty use authorization exclusion and avoidance area where realty or realty-related land uses would be prohibited or restricted.

If a valid application would be received, the existing Fields airstrip would be leased and reopened for public use. This would provide aviators a safer, more centralized place to land and take off. It could also improve public safety and limit

resource damage by reducing aircraft operations in undeveloped areas. Reopening and improving the airstrip could also result in increased aircraft traffic and related visitation to the area. It would have local effects such as increased noise, soil and vegetative disturbance, and possible fuel or pesticide spills from aircraft spraying operations. Since the lands would be identified for exchange only for specific lands (e.g., the Steens Mountain Wilderness), no definitive tenure could be assured to the lessee unless the lessee could secure nonpublic lands in the wilderness to exchange for the airstrip lands. The United States' liabilities associated with operation and maintenance of the airstrip would end if and when the lands were exchanged. Since the lands would be identified for exchange only for specific lands (Steens Mountain Wilderness), no definitive tenure could be assured to the lessee unless the lessee could secure nonpublic lands in the wilderness to exchange for the airstrip lands. The United States' liabilities associated with operation and maintenance of the airstrip would end if and when the lands would be exchanged.

Approximately 20,367 acres would be proposed for new withdrawals under this alternative protecting only key special management areas, which were not already withdrawn.

Generally, the primary effect of this alternative would be that many ROWs realty land uses, and renewable energy projects would be allowable and accepted in open areas while protecting sensitive resources and areas where they exist. Large scale projects and activities such as major transmission lines, energy development, and military maneuvers would be possible outside of corridors and avoidance and exclusion areas, but may be limited or restricted to some extent dependent upon location and nature of the proposal.

Designated avoidance/exclusion zones would be limited to key special areas under this alternative, which provides fewer constraints to realty land use activity. Still, other restrictions in the management actions for this alternative exist and place additional constraints on the program.

Under this alternative, access, scenic, or conservation easements would be acquired where public demand and administrative need exists. Construction of roads around private lands, if necessary to secure access, would be an available option, but would be limited to areas where critical access needs have been identified. Emphasis for access acquisition would be to provide access to public lands containing high public resource values. This alternative provides proactive direction and emphasizes use of land tenure actions to secure and maintain access.

Alternative D provides a variety of options to resolve unauthorized use, with some limitations. This flexibility could result in effects to sensitive resource values. It may also have some potential of promoting trespass when the trespasser knows that the use may be ultimately authorized. The higher costs of trespassing vs. legal authorization may deter most trespassers and limit this potential.

Indirect Effects

Under this alternative, protection and enhancement of natural values (e.g., special status species, wildlife habitat, visual resources and Congressional and administrative designations) limits many types of ROWs, realty use, and renewable energy authorizations and disposals. Basic infrastructure and public needs could be accommodated. Large scale development and land uses may be possible outside of avoidance and exclusion areas.

4.17.3.6 Alternative E

Direct Effects

Under this alternative, the major emphasis of land tenure adjustment would be for commodity production and weighted toward disposals rather than acquisition of public or natural values. Retention of lands would be mandated only in Zone 1A, with maximum flexibility to exchange lands for commodity production being available in Zones 1, 1B, 2, and 3. Opportunity would be maximized for disposal by sale or other means in Zone 3. Lands for public purposes would be available in Zones 1, 2, and 3. Lands for community expansion would be available by exchange, sale, or other means consistent with the land tenure zones. These disposal opportunities may result in the potential for loss of some lands with natural or public values, or conflicts with existing uses and values.

Sales or other disposals to resolve any unauthorized agricultural or occupancy use could be made in any zone except in 1A, regardless of when or how the unauthorized use originated.

In this case, the land tenure zones established for this alternative only take key special designations (e.g., wilderness, WSAs, ACECs, and the CMPA) into consideration by including these designations in the retention zones (Zone 1, 1A,

and 1B). Other special resource values would be considered for retention or disposal on a case-by-case basis. Only in Zone 1A would there be prohibitions placed on any form of land disposal. All disposal actions would be subject to site-specific inventory and screening for the existence of any special resource values that may have been unknown or overlooked at the time of the RMP development. These values would be considered in the final decision to dispose of the land. In the case of exchanges, special resource values may be vulnerable to disposal in most zones, but would be weighed against the commodity-producing values to be gained in the exchange.

Acquisition opportunities would be focused only in Zones 1, 1A, and 1B and only by exchange. No purchases or donations would occur under this alternative. Likewise, no acquisition by exchange of Zone 2 or 3 lands would be authorized.

Although relative acreages in Zones 1, 1A, and 1B would generally remain constant, there would be the potential for an overall net loss of public lands in the Planning Area due to liberalized disposal possibilities. A corresponding increase in county tax revenues could occur. Further, tax revenues would be enhanced by disposal of public lands, some of which would be converted to commodity production such as seedings or alfalfa fields under private ownership, which should result in higher assessed values on those lands.

Overall, there would be a high opportunity for land disposal, consolidation of private lands, and facilitating of commodity production. Lands containing public values could be lost and some areas of public lands could potentially be fragmented.

Alternative E designates 354 miles of public lands as ROW corridors. Corridor designations would be maximized in this alternative to provide a variety of different route alternatives and have an increased width to provide additional siting flexibility within the corridors. In this alternative, proponents for all large scale facilities would be encouraged to site their facilities in the corridor. In this respect it would be similar to Alternative D. Designated ROW, realty use, and renewable energy exclusion/avoidance areas total 849,690 acres.

If a valid application were received, the existing Fields airstrip would be leased and reopened for public use. This would provide aviators a safer, more centralized place to land and take off. It could also improve public safety and limit resource damage by reducing aircraft operations in undeveloped areas. Reopening and improving the airstrip could also result in increased aircraft traffic and related visitation to the area. It would have local effects such and increased noise, soil and vegetative disturbance, and possible fuel or pesticide spills from aircraft spraying operations. Since the lands would be identified for disposal, the lessee could be assured of definitive tenure if the lands would be conveyed to him for that purpose through an Airport Conveyance or other disposal. Also, since the lands would be identified for immediate disposal, the United States' liabilities associated with operation and maintenance of the airstrip would be minimized.

There would be no new protective withdrawals. Other withdrawal actions would be geared toward opening lands for commodity-producing activities.

Designated avoidance/exclusion zones would be limited to key special areas under this alternative, which provides fewer constraints to realty land use activity. Still, other restrictions in the management actions for this alternative exist and place additional constraints on the program.

Under this alternative, the emphasis for access acquisition would shift from providing access for administrative and public purposes to acquiring access to public lands high in commodity value. This would allow access for management, extraction, or use of commodity resources on all the public lands. Implementing this proposal would emphasize constructing new roads around private lands to facilitate commodity development, and would forego opportunities to access public land with high public resource values. No scenic or conservation easements would be authorized under this alternative.

Alternative E would promote commodity production by authorizing the use or disposal of the lands affected by all forms of trespass. This alternative has the potential to affect resource values and promote trespassing. Special resource values would not constrain the ability to authorize use or convey land to settle the trespass, since these remedies would be mandated under this alternative.

Generally, the primary effect of this alternative would be that most ROWs, realty land uses, and renewable energy development would be allowable and accepted, while only the most critical sensitive resources and areas would be protected and in some cases affected by this type of development. Large scale projects and activities such as major

transmission lines, energy development, and military maneuvers would not only be possible, but also encouraged outside of corridors and avoidance and exclusion areas.

Indirect Effects

Although disposal and realty use authorization opportunities and flexibility would be maximized in this alternative, special resource values could still constrain and prohibit lands and realty activities.

4.17.4 Summary of Effects

Land tenure management goals would be achieved under all alternatives except Alternative B where disposal objectives by exchange, sale, or other method would not be achieved. Land exchange opportunities would be greatest in Alternative D and E where a larger amount of land would be identified for exchange in Zones 2 and 3 and where the greatest flexibility to exchange Zone 1 lands exists. Land sale opportunities would also be greatest in Alternatives D and E. Although land sales and exchanges would be possible under Alternatives A and C, opportunities for these disposals would be severely diminished as compared to Alternatives D and E due to reduced acreage available for disposal and the inflexibility of these alternatives.

The opportunity for acquisition by any method would be greatest under Alternative D where adequate lands would be available to exchange for lands with important public values. Alternative D also provides direction and focus so that acquisition efforts would not be wasted in areas with low resource or public values. Although Alternative B may appear to provide excellent opportunities for acquisition, it may actually do so less than the other alternatives because the ability to utilize exchange as an acquisition method would be prohibited. Alternative B also lacks any acquisition priority or focus.

Alternative E has the greatest potential for the loss of significant public resource values since disposals would be emphasized and acquisitions would be geared toward commodity production. Alternative B provides the least potential to lose resource values since no disposal would be authorized.

Alternative B would have the greatest effect to the county tax revenues because all acquisition would be by purchase with no corresponding disposals to place exempt public lands on the tax rolls. Alternatives A, D, and E would have wide-ranging effects, depending upon the types and amount of land tenure adjustment being undertaken.

Realty use authorization management goals would be achieved under all alternatives except Alternative B where public and private needs for realty use authorizations would not be met due to severe restrictions on this type of activity in the entire Planning Area. Alternatives A and E would be similar and provide the most opportunity and flexibility for authorization of ROW and realty land use activity. They also have the greatest potential for effects from land uses on sensitive lands and resource values. Alternative C designates a major portion of the Planning Area as avoidance/exclusion zones with restrictions in other areas. This alternative provides the most constraints on realty use authorizations over all other alternatives except B, which prohibits outright most realty land use activity. Although Alternative C would be limited, for the most part critical public and private needs would be met. Alternative D provides balance between public and private land uses and protection of resources.

Access acquisition management goals and objectives would be achieved under all alternatives but with emphasis on different values. Alternative A would be a continuation of the present situation as it currently exists in the MFP with little emphasis on proactive access acquisition. Alternatives B and C provide emphasis and direction for the program toward protection of natural values at the expense of public access and values. Road construction would not be an option to securing legal rights under these alternatives. Alternative D would provide for acquiring access to areas containing high public resource values including sensitive resources and natural values, and includes specific direction in relation to road construction and land tenure activities as they relate to access. Alternative E emphasizes access for commodity-producing activities, but public access opportunities may be foregone.

The stated management objective of eliminating unauthorized use would be achieved under all alternatives. However, Alternative B would not meet the overall management goal to provide lands, interests in land, and use authorizations for public and private needs. Alternatives A, D, and E provide management flexibility to resolve sometimes difficult unauthorized use cases. Alternatives B and C have little, if any, such flexibility and would limit the ability to provide reasonable solutions to difficult situations. Alternatives A and E have the most potential to affect sensitive resource values but would provide the ability to maintain good working relationships and public perceptions, and would provide reasonable solutions for trespass resolution.

4.17.5 Cumulative Effects

Most federal land management agencies, including the BLM, which have land tenure adjustment programs strive to maintain the private/public land ownership ratio within their respective jurisdictional areas. The most direct cumulative effect of the BLM's land tenure activity would be on the Harney County tax base, which involves lands in both the Andrews RA and the Three Rivers Planning Area to the north. For example, all facets of the Burns Districts land tenure program including sales and exchanges have materially offset the effect of land purchases in the Steens Mountain Area. BLM records show that since 1980, the BLM acquired through purchase, exchange, or donation approximately 207,022 acres in Harney County. During the same time period the BLM conveyed 318,964 acres out of federal ownership for a net gain in private and state ownership of 111,942 acres. Some of these conveyed federal lands have been converted to alfalfa, crested wheatgrass or other development that would not have occurred in federal ownership. Conversion of lands to a higher commodity value should result in a higher assessed value on the land, further improving county tax revenues.

Projections of cumulative impact of land tenure activity would be difficult to determine; however, based on past history of the District's land tenure program (1980 to present) an annual average of 1571 acres of public land were exchanged for 686 acres of private land. These figures exclude the large State of Oregon Exchanges (1984 to 1988) and the Steens Mountain legislated exchanges (2001 to 2002), which would be atypical of an average exchange effort. Land purchases in the District, all in the Steens, averaged 818 acres per year. Public land sales District-wide averaged 523 acres per year. Based on this same historical data, less than one exchange transaction can be expected per year; one purchase every two years; and three public land sale cases per year. Assuming similar staffing and funding levels for the next 20 years the cumulative impact of the program in the entire District would be projected as follows: 31,420 acres of public land would be exchanged for 13,720 acres of private land; 16,360 acres of private land would be purchased; and, 10,460 acres of public land would be sold. From these figures the total public lands projected to be conveyed through all forms of disposal in the next 20 years would be 41,880 acres. Private lands that may be acquired through exchange and purchase would total 29,780 acres. Most, if not all, of this land tenure activity for the District would be in Harney County, continuing the historical trend and effect on the County's tax base. Although these records would be maintained as District totals, roughly half of the historical exchange and sale transactions and all of the purchase transactions have been in the Andrews RA. Factors influencing and probably limiting these projected levels include the alternative selected; staffing and funding levels; unforeseen priority shifts; and new emphasis on conservation easement over fee acquisition.

BLM land status records indicate that since 1980 there have been approximately 60 ROW and realty use authorization cases in the Planning Area currently affecting approximately 2000 acres. Most of these previous grants have been for small scale electric and telephone distribution lines, private and county roads, water ditches, canals and pipelines and temporary use permits for low impact activities such as commercial filming and photography. Many of these ROWs authorize existing facilities and replace older, less explicit grants. There have been no large scale (greater than 69kV) electric transmission line or other large utility ROWs established during that time frame. Those that do exist in the Planning Area were established prior to 1980. There would be no large scale land use proposals on the horizon and nothing to indicate that this trend would be any different for the next 20 years. It would be projected that new ROWs granted in the next 20 years would affect about 1000 acres since most county roads and state and federal highways, which make up more than half of the existing acreage affected by ROWs, have already been authorized by newer FLPMA grants. It would be anticipated that the cumulative, new, on-the-ground effects from ROW and realty use activities would be limited to about half of that number or about 500 acres in the next 20 years since many new grants would authorize existing uses or replace older grants. These projections can be affected by the alternative selected, public demand, shifting policies, and unforeseen proposals and initiatives.

Generally, with the exception of Alternative B, the cumulative effects associated with the location of realty use authorizations would be similar for all the alternatives. Alternatives A, C, D, and E do not prevent the location of realty use authorizations except for exclusion zones, but restrict the location of some kinds of realty use authorizations in certain areas to protect resource values. Excluding or avoiding certain areas for the location of realty use authorizations may lessen the effect to a particular resource considered of public value, but would not lessen the physical alteration of the landscape necessary to accommodate the use at another location. The cumulative effect associated with realty use authorizations would be a function of demand and the number of acres occupied by the ROWs. Implementation of Alternatives A, C, D, and E would not affect the demand for or number of ROWs, but only relocate the physical effect of those ROWs authorized. The more ROWs granted by the land management agencies (federal and state), as well as private easements, the more cumulative effect to the landscape. Alternative B would presumably not allow the location of new ROWs anywhere in the Planning Area on public land. This would cause some types of land uses, where feasible, to be relocated to nonpublic lands. Therefore, cumulative effects would still result from Alternative B, but not on public land and probably not to the level of the other alternatives.

The cumulative effects, over time, of eliminating unauthorized use would be minimizing effects to sensitive resources, deterring future unauthorized use, realizing a fair return for use of the public land, and improving public perception.

4.18 Transportation and Roads

4.18.1 Goals and Objectives

Goal - Provide travel routes to and through BLM managed lands as appropriate to meet resource objectives while providing for private and public access needs.

Objective 1. Manage roads and ways within the CMPA consistent with the Route Management Categories and Maintenance Levels identified for each alternative.

4.18.2 Assumptions

The AMU would continue under present transportation/maintenance direction.

All road, or route, designations and maintenance within the CMPA must adhere to the Steens Act, specifically Section 112.

The Steens Act closed approximately 104 miles of motorized routes in the Steens Mountain Wilderness. These routes would remain closed across all RMP alternatives. This may increase use of other motorized routes within the CMPA.

BMPs would be utilized for construction, maintenance, and general management of the transportation system (Appendix M). These BMPs would be consistent across all alternatives.

Road closure proposals not currently identified in this planning document would undergo additional environmental review with associated public input. Currently proposed closures are shown by alternative on Maps 2.9, 2.10, 2.11, 2.12, and 2.13.

4.18.2.1 Effects Common to All Alternatives

Water resources management calls for the use of BMPs and proper floodplain management/function to protect water quality. Management of these components would be the same for all alternatives. Such activities may limit road construction and maintenance techniques. They may also promote road stability and decrease maintenance efforts and costs. Soils management calls for BMPs to be implemented under all alternatives except Alternative B. The use of BMPS for soils would have the same effects as those discussed under water resource effects.

Activities that may be conducted for fish and wildlife management could affect transportation and roads under any of the alternatives. These activities may include altering or closing road crossings and habitat restoration, both of which may temporarily or permanently affect public access and road maintenance. Monitoring would help determine the need for future road closures or alterations.

Protection of habitat for special status animal and plant species may affect the location and use of roads and have consequences to access.

The amount of public recreation use and access demands would affect road condition, road maintenance, and access. The addition of public access easements across private lands would increase access to public lands, and may reduce conflicts with private landowners and damage to private lands.

Road use and public safety concerns during wildland fire suppression activities may cause temporary closure of some routes. Routes heavily used by fire equipment may be temporarily damaged; however, fire rehabilitation efforts and precipitation would correct damaged roadbeds.

Prescribed fires for woodland management may cause temporary closure of routes and heavy use of routes could cause short-term damage.

Grazing would affect roads, access, and maintenance based on emphasis regarding use levels and range developments that would increase or decrease road use levels, maintenance, and access demands.

4.18.2.2 Alternative A

Direct Effects

Continuation of the current road use and maintenance levels and seasonal restrictions for the existing road system would have no new effects on maintenance or degree of access.

Indirect Effects

Grazing Management. Grazing permittees periodically perform maintenance on BLM roads to facilitate their livestock management activities. This maintenance would normally be authorized under cooperative agreement and generally improves road conditions and access to public lands.

Recreation. Recreation would be one of the main uses of most BLM roads. Vehicle traffic can damage roads when the surfaces were wet or when use would be particularly heavy. Maintenance needs arise from need to provide safe travel routes for the general public. Road closure violations and vandalism to traffic control facilities (e.g., signs and gates) generally rise in relation to increased recreation activity.

Off-Highway Vehicles, WSAs, and Wilderness. WSAs and Wilderness - The Steens Mountain Wilderness designation closed about 104 miles of motorized routes. This has resulted in more use of the remaining open routes, including those across private lands and through and adjacent to WSAs.

4.18.2.3 Alternative B

Direct Effects

Under this alternative, the priorities of road closure and maintenance would be consistent with maximizing natural processes. Road closures and decreased maintenance would reduce motorized access to public lands (see Map 2.10). Approximately 156 miles of closed routes would be proposed under this alternative. Decreased road maintenance would result in lower maintenance costs.

Indirect Effects

Grazing Management. In the absence of grazing, no maintenance would be done by the livestock operators; therefore, BLM maintenance costs may increase on some of the secondary access roads. Some additional route closures would be considered, since they would no longer be needed for administration of the grazing program.

Recreation. Maximizing natural processes for recreation purposes would close the Steens Loop Road to all motorized use from November 15 to May 15 and would seasonally close all other routes within the CMPA from February 1 to May 15. Closure of the secondary routes until May 15 each year would reduce winter and spring user damage to some routes that would reduce annual road maintenance costs.

Off-Highway Vehicles. Route closures proposed to reduce vehicular activity near wilderness and WSAs would close 156 miles of motorized routes under this alternative. Eighteen miles of the Steens Loop Road from the Kiger Overlook to west of Blitzen Crossing would be included with the proposed closures. Other roads proposed for closure include Fish Creek, Cold Springs, Bone Creek, Newton Cabin, Indian Creek, Three Springs, and Big Alvord where these roads would be bounded on both sides by wilderness. The route closures for this alternative are shown on Map 2.10.

4.18.2.4 Alternative C

Direct Effects

Under this alternative, the transportation system would be managed to meet resource goals and objectives consistent with emphasizing the protection of natural values. Twenty-nine miles of motorized routes would be closed, reducing motorized access to public lands (Map 2.11) Road closures and decreased maintenance would result in decreased costs.

Indirect Effects

Grazing Management. With grazing allocations similar to current levels, shared maintenance of roads would be similar to Alternative A. Most routes left open for livestock administration would also be available to the public.

Recreation. Emphasizing natural recreation values would have effects similar to Alternative A. The North Steens Loop Road would be open by permit to the snow line for nonmotorized forms of winter recreation. The Moon Hill Road would be closed seasonally to protect the road surface and enhance natural values.

Off-Highway Vehicles. Route closures proposed to reduce vehicular activity near wilderness and WSAs would close 29 miles of motorized routes. The Rooster Comb portion of the Steens Loop Road (approximately three miles) would be closed. Other route closures include Cold Springs Road west of Nye Cabin to the Riddle Brothers Ranch, Indian Creek Road north of Indian Creek and along the WSA/Wilderness boundary, Fish Creek Road where bounded on both sides by wilderness, a 1.2 mile portion of Bone Creek road that heads west to the private land block, and six miles of ways within the Blitzen River and South Fork of the Donner und Blitzen WSAs.

4.18.2.5 Alternative D

Direct Effects

This alternative would be based on meeting resource goals and objectives, while balancing cultural, ecological, and social and economic values. Seven miles of routes would be closed, reducing access to public lands. Expanded winter access for motorized uses and motorized access to dispersed campsites would also increase public access.

Grazing Management. Grazing effects would be similar to Alternative C.

Recreation. Recreation effects to the Steens Loop Road would be the same as Alternative A. Moon Hill Road would be closed seasonally to protect the road surface. Roads leading to dispersed campsites would be added to the transportation system. Vehicles could park within 100 feet of many of the open roads unless precluded due to specific resource concerns or requirements.

Off-Highway Vehicles. WSA and wilderness management would close the 1.2 mile portion of Bone Creek Road that heads west to the private land block, and six miles of ways within the Blitzen River and South Fork of the Donner und Blitzen WSAs.

4.18.2.6 Alternative E

Direct Effects

This alternative emphasizes commodity production and public uses of public lands. No route closures would be proposed for this alternative. Increased access and road maintenance combined with less restrictive management could increase use of the road system as well as maintenance costs. Expanded winter access and motorized access to dispersed campsites would also increase use of the road system. Increased access, road maintenance, and commercial and recreation activities may cause effects to other resource programs.

Indirect Effects

Grazing Management. Cooperative agreements to allow grazing permittees to maintain BLM roads could increase under this alternative, which would improve the condition of affected roads. As public land grazing would be expanded, increased road use by grazing operators during wet periods would cause additional damage to routes.

Off-Highway Vehicles. No routes would be closed under this alternative. Increasing winter recreation use on all routes within the CMPA could cause additional route damage as people travel on wet roads to access the snow line.

Recreation. Recreation-related commodity uses include expanding winter use to the South Steens Loop Road, adding routes to dispersed campsites to the transportation system, and allowing vehicles to park within 100 feet of specified open roads.

4.18.3 Summary of Effects

Alternative A would be similar to the current level of access and maintenance.

Alternative B would impose the greatest limits on access and would result in the lowest maintenance costs.

Alternative C would have effects similar to Alternative B, but with fewer road closures and restrictions; this would result in more access than under Alternative B, but less than all other alternatives.

Alternative D would result in road access similar to Alternative C, except that camping and day use opportunities would be expanded relative to addition of access routes to dispersed campsites and the 100-foot parking allowance.

Alternative E would impose the fewest restrictions on access and require the greatest amount of maintenance. Additional portions of the South Steens Loop Road would be open to motorized winter recreation and there would be no route closures under this alternative.

4.18.4 Cumulative Effects

The closure of routes in Alternative B would cause increased traffic in other portions of the CMPA. Closing the 18 mile segment of the Steens Loop Road in Alternative B would decrease visitor use and associated economic benefits. Allowing 100-foot parking areas adjacent to open roads could add short travel routes to currently undisturbed areas. The implementation of BMPs for the other transportation actions should minimize other cumulative effects.

4.19 Off-Highway Vehicles

4.19.1 Goals and Objectives

Goal - Manage motorized (OHV) and mechanized (nonmotorized) vehicle use to protect resource values, promote public safety, provide OHV and mechanized vehicle use opportunities where appropriate and allowable, and minimize conflicts between various users.

Objective 1. Manage OHV and mechanized vehicle use in conformance with OHV designations.

4.19.2 Assumptions

All OHV designations within the CMPA must abide by the mandates of the Steens Act, specifically Section 112.

All WSAs in the Planning Area would be designated as closed, limited to existing (at the time of the WSA inventory) ways and trails, or limited to designated ways and trails. The Steens Mountain Wilderness would be designated as closed to all motorized and mechanized vehicle use through all alternatives.

The use of motorized or mechanized vehicles would be explicitly prohibited off roads on public lands in the CMPA.

The limitations to OHV and mechanized vehicle use proposed under the alternatives do not apply to official use, any fire, military, emergency or law enforcement vehicle when used for emergency purposes, any combat or combat support vehicle when used for national defense purposes, and any vehicle whose use would be expressly authorized under a permit, lease, license, or contract.

4.19.3 Analysis of Alternatives

4.19.3.1 Effects Common to All Alternatives

Indirect Effects

Water Resources. Water resources management calls for the use of BMPs and proper floodplain management and/or function to protect water quality. Water resources management may limit or restrict OHV and/or mechanized vehicle use where water quality could be or would be impaired by runoff from roads and trails.

Fish and Wildlife. Actions conducted for fish and wildlife management could affect OHV and mechanized vehicle use. These actions may include habitat restoration and relocating or closing roads or trails, which may temporarily or permanently affect routes available for OHV and mechanized vehicle use.

Special Status Species. Protection of critical habitat for special status animal and plant species may permanently or seasonally affect the location and use of roads and trails, thereby affecting OHV and mechanized vehicle use.

Cultural Resources, Paleontological Resources and Native American Traditional Practices. Protection of important cultural or paleontological sites and the preservation of Native American Traditional Practices may close or relocate roads; thereby affecting OHV and mechanized vehicle use.

Visual Resources. VRM class objectives would be considered in affect the location and design of roads or trails, which would not affect OHV and mechanized vehicle use. VRM class objectives would also guide the rehabilitation and restoration of landscapes affected by OHV and mechanized vehicle use.

Energy and Minerals Development. Energy and minerals development could affect OHV and mechanized vehicle use patterns. Users would avoid these areas when operations were occurring, displacing them to other areas. These activities would also create sites that would be attractive to OHV and mechanized vehicle users and could concentrate use.

Recreation. Recreation management actions could affect OHV and mechanized vehicle use and management. Promoting use and visitation could increase OHV and mechanized vehicle use and could affect road, trail, and open area conditions. Recreation use restrictions could potentially lead to a decrease in OHV and mechanized vehicle use or to increased use and degradation of those roads and trails available for use.

Transportation and Roads. Road closures and maintenance were considered in the current OHV and mechanized vehicle designations. Therefore, transportation management actions would not result in any new or additional effects to OHV and mechanized vehicle.

Wilderness and Wilderness Study Areas. Wilderness and WSA management would be the same in all alternatives. WSAs would be designated as closed or limited to either existing or designated ways and trails. The Steens Mountain Wilderness would be designated as closed to all motorized and mechanized vehicle use. Should Congress designate a WSA as wilderness, the area would be designated as closed to motorized and mechanized vehicle use. Areas released from WSA status would be redesignated according to the surrounding or adjacent OHV designation(s), unless local conditions indicate that a different OHV designation would be appropriate. There could be fewer restrictions on OHV and mechanized vehicle use in released WSAs.

4.19.3.2 Alternative A

Direct Effects

Planning Area
Maintaining the existing OHV designations and seasonal closure on the Steens would not affect current OHV and mechanized vehicle use.

CMPA
The current OHV designations, the result of the Steens Act, closed the Steens Mountain Wilderness to motorized and mechanized vehicle use. The Steens Act also prohibits the cross-country travel by motorized and mechanized vehicles. These designations resulted in the displacement of OHV and mechanized vehicle users to roads outside the Steens Mountain Wilderness and increased use on those roads. At the same time, those areas that had been designated as open were changed to "limited to designated" roads, ways, and trails, further restricting OHV and mechanized vehicle use.

AMU
The Pueblo and Trout Creek Mountains would not formally be closed seasonally.

4.19.3.3 Alternative B

Direct Effects

Planning Area
The Planning Area would be designated as limited to designated roads and trails or closed. No areas would be designated as open or limited to existing roads and trails. No opportunities for OHV and mechanized vehicle play (open areas) would be available, organized events would not be allowed, and roads and trails available for use would be reduced. Closing WSAs and WSA cherrystem roads would further reduce the opportunities for OHV and mechanized vehicle use.

CMPA
Closing the Steens Mountain Loop Road would eliminate access to many roads used by OHVs and mechanized vehicles. Closing these and other roads in the CMPA would further reduce the routes available for OHV and mechanized vehicle use. Seasonally closing the entire CMPA would eliminate all motorized and mechanized use during the winter and spring. This would displace users (especially snowmobiles) to lands outside the Planning Area and to areas adjacent to the CMPA where more resource damage may occur.

AMU
Closing the Alvord Desert playa would displace OHV and mechanized vehicle to suitable areas in adjacent states, thereby increasing use in those areas. Seasonally closing the Pueblo and Trout Creek Mountains would displace those OHV and mechanized vehicle users to other areas. Since winter and spring use in these areas would be very light, the effects of these closures would be small.

4.19.3.4 Alternative C

Direct Effects

Planning Area
The Planning Area would be designated as limited to designated roads and trails or closed. No areas would be designated as open or limited to existing roads and trails. No opportunities for OHV and mechanized vehicle play (open areas) would be available, but most roads, ways, and trails would be available for use. Designation of the four parcels found to contain wilderness values as limited to designated roads and trails would protect the naturalness and opportunities of solitude in the parcels.

CMPA
Closing the Rooster Comb to motorized vehicles only would close the Steens Mountain Loop Road to through traffic. Closing other roads in the CMPA would reduce the routes available for OHV and mechanized vehicle use. Seasonally closing the core of the CMPA would only affect those OHV and mechanized vehicle users who use the Moon Hill Road in the winter and spring. Nonmotorized winter recreationists would be permitted to drive to the snow line. This could displace users (especially snowmobiles) to lands northeast of the closure, where more resource damage may occur, and to lands outside the Planning Area.

AMU
Closing the Alvord Desert playa would displace OHV and mechanized vehicle to suitable areas in adjacent states, thereby increasing use in those areas. Seasonally closing the Pueblo and Trout Creek Mountains would displace those OHV and mechanized vehicle users to other areas. Because winter and spring use in these areas would be very light, the effects of these closures would be small.

4.19.3.5 Alternative D

Direct Effects

Planning Area
Most of the Planning Area would be designated as limited to existing or designated roads, ways, and trails. One area would be designated as open, thus providing an opportunity for OHV and mechanized vehicle play. Most roads and trails would be available for use. Opportunities for OHV and mechanized vehicle use would generally be available.

CMPA
Closing seven miles of roads in the CMPA would not affect OHV and mechanized vehicle use, because these would be mostly duplicate roads. Seasonally closing the core of the CMPA would only affect those OHV and mechanized vehicle users who use the Moon Hill Road in the winter and spring. This could displace some users (especially snowmobiles) to lands northeast of the closure, where more resource damage may occur, and to lands outside the Planning Area. Winter recreation users would be permitted to drive to the snow line on the North Steens Loop Road. Seeking cooperative agreements with OHV and mechanized vehicle clubs may decrease resource degradation and user conflicts.

AMU
Designating all areas in the AMU, except the WSAs, the Alvord Desert playa, and some ACECs, as limited to existing roads, ways, and trails, would increase the number of routes available for OHV and mechanized vehicle use. Seasonally closing the Pueblo and Trout Creek Mountains would displace those OHV and mechanized vehicle uses to other areas. Since winter and spring use in these areas would be very light, the effects of these closures would be small.

4.19.3.6 Alternative E

Direct Effects

Planning Area
Most of the Planning Area would be designated as open or limited to existing or designated roads, ways, and trails. Much of the AMU would be designated as open to OHV and mechanized vehicle use, thus providing extensive opportunities for OHV and mechanized vehicle play. Most roads and trails would also be available for use. OHV and mechanized vehicle use opportunities would be maximized.

CMPA
No additional roads in the CMPA would be closed, therefore OHV and mechanized vehicle use would not be affected. Seasonally closing the upper Steens Mountain area would also not affect motorized or mechanized use during the winter and spring, because the Steens Mountain Loop Road would be open to the snow line when road conditions were suitable.

AMU
Designating the AMU WSAs as limited to existing ways and trails would increase routes available for OHV and mechanized vehicle use. The remainder of the AMU, except Mickey Hot Springs and two other parcels, would be designated as open for OHV and mechanized vehicle use, thereby enhancing OHV and mechanized vehicle opportunities. The Pueblo and Trout Creek Mountains would not formally be closed seasonally.

4.19.4 Summary of Effects

Alternative B would be the most restrictive and would result in decreased use throughout the Planning Area; however, it may result in increased use of the remaining roads and trails and could lead to user conflicts. Alternatives C and D would result in similar consequences for OHV and mechanized vehicle use. Alternative E would result in the greatest opportunity for use; the potential to cause the most resource degradation; and with fewer areas designated for primitive recreation and solitude, could lead to user conflicts.

4.19.5 Cumulative Effects

Management actions would cumulatively affect OHV and mechanized vehicle use and users within the Planning Area. Future management actions relating to the protection of potential or existing threatened, endangered, and/or sensitive plant and animal species have a high potential for affecting motorized recreation uses. However, the degree or level of the effects would be unknown at this time.

Actions that restrict access and/or numbers of OHV and mechanized vehicle users result in users looking elsewhere for recreation opportunities. This leads to increased use of the other areas and may result in increased degradation of resources and user conflicts. The population growth of the Bend and Portland areas as well as increased interest in OHV and mechanized vehicle use could result in increased motorized and mechanized recreation in the Planning Area. Protection of resources dictates increased management, which inevitably requires stricter controls on access and user numbers.

The BLM's National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, and the USFS' Forest Service's Roadless Areas Initiative would affect motorized recreation uses in regard to both present and future actions. The BLM's National Mountain Bicycling Strategic Action Plan would affect mountain biking.

4.20 Recreation

4.20.1 Goals and Objectives

Goal - Provide developed and undeveloped recreation opportunities, while protecting resources, to manage the increasing demand for resource-dependent recreation activities.

Objective 1. Establish and manage recreation areas where the presence of high quality natural resources and the current or potential demand warrants intensive management practices to protect areas for their scientific, educational, and/or recreational values while accommodating anticipated increases in use for recreation activities in specific areas.

Objective 2. Manage recreation facilities to protect natural resources and to meet user needs.

Objective 3. Outside of the intensive-use areas, manage the remainder of the Planning Area for dispersed recreation.

Objective 4. Manage visitor use in the Planning Area to protect natural resources and to provide a variety of recreation opportunities.

Objective 5. Provide information and educational opportunities to public land visitors.

Objective 6. Manage commercial, competitive, educational, and organized group recreation activities.

Objective 7. Manage BCBs to protect the recognized values.

Objective 8. Manage the High Desert National Scenic Trail to protect the recognized values and setting.

4.20.2 Management Common to All Alternatives

Public lands in a resource area not designated as SRMAs became an ERMAs.

Throughout the Planning Area, occupancy and use for recreational camping would be limited to 14 days in one location.

Management and maintenance of existing developed recreation sites would continue under all alternatives.

4.20.3 Analysis of Alternatives

4.20.3.1 Effects Common to All Alternatives

Indirect Effects

Water Resources, Riparian and Wetlands. Water resources management and riparian vegetation management could restrict access and/or the use of certain areas where resources have become degraded/impaired or to protect water quality. This would limit recreational use of such areas. Activities, which may be conducted for fish and wildlife management, could affect recreation use under any of the alternatives. These activities may include altering or closing roads, trails or campsites, and habitat restoration, all of which may temporarily or permanently affect recreational use or access. In addition, if fish or wildlife habitat would be degraded and a decline in any fish or wildlife species occurs, this would reduce opportunities for wildlife viewing, hunting, and fishing.

Special Status Species. Protection of critical habitat for special status animal and plant species may affect the use of roads, trails, campsites, and facilities and could reduce the recreational use of some areas. The protection of special status species would be emphasized in Alternatives B and C; therefore, the potential to reduce recreation opportunities would be greatest under these alternatives.

Energy and Minerals. Mineral and energy operations may directly or indirectly displace recreationists from areas where operations were active. Inactive, unreclaimed operation sites may attract intensive OHV and mechanized vehicle use because of the varied terrain and play opportunities.

Cultural Resources, Paleontological Resources and Native American Traditional Practices. Protection of significant cultural or paleontological sites and the preservation of Native American Traditional Practices may affect the use of roads, trails, and campsites and may reduce the areas available for recreation. The protection of important cultural or paleontological sites and the preservation of Native American Traditional Practices would be emphasized in AlternativesB and C; therefore, the potential to reduce recreation opportunities would be greatest under these alternatives.

Visual Resources. VRM class objectives would be incorporated into the planning, siting, and design of all recreation developments, facilities, and projects. VRM class objectives would be met for all recreation management actions.

Social and Economic Values. Social and economic values, which promote use and visitation, as emphasized in Alternative E and included in Alternatives A and D, would lead to increased use, which could affect road, trail, campsite, and facility conditions. This may affect recreational use and enjoyment of some areas. Restrictions on visitation under Alternatives B and C would potentially lead to an overall decline in recreation use or to increased use and degradation of fewer areas.

Transportation and Roads. Road closures and maintenance activities proposed in the Transportation Plan would affect recreation because access may be restricted.

4.20.3.2 Alternative A

Direct Effects

Planning Area
Current management would continue and minor measures to increase recreation opportunities, tourism, or visitation would be implemented. Current management would not have any new or additional effects to recreation.

CMPA
Maintaining the Mann Lake Recreation Site in its present condition would allow the current resource damage and site problems to continue and would not address the increased use that would be anticipated with the paving of the East Steens Road. This increased use could displace current users who prefer the primitive setting. There could also be a change in the type of Mann Lake user as road improvements encourage different users and vehicles, possibly requiring a change in management direction. Maintaining the existing horse trailhead facility could have a number of effects to recreation. The existing Little Blitzen parking area would need to be expanded to accommodate existing horse use or day horse users would need to park along the South Steens Loop Road. Parking horse trailers and riding on the South Steens Loop Road pose serious safety concerns for both horses and their riders. Parking horse trailers in the South Steens Campground equestrian side would congest the campground and could occupy campsites that others may want to camp in. Not installing a toilet on the North Loop Road near Jackman Park would increase vehicle traffic through Fish Lake Campground and would not help address sanitation concerns on the private lands east of Fish Lake. Not developing a group camping area would require groups to stay in the campgrounds, thereby causing crowding and reducing the number of sites available to the general public. In many cases, group use affects other campers and detracts from their recreational experiences, so it would be preferable to separate groups from other campers. Maintaining Lily Lake as a dispersed recreation site would allow the existing uses and concerns to continue and would reduce educational opportunities. These concerns include sanitation, cutting of aspens for firewood, and protection of Lily Lake. Not providing trail access to the Fir Grove would reduce hiking and educational opportunities.

Trails would not be developed outside the Steens Mountain Wilderness, thereby limiting hiking to cross-country travel and roads and nonmotorized vehicles to designated roads.

Camping locations would not be restricted. Allowing camping and overnight use at the overlooks would deter many visitors from spending time there because they would feel that they would be intruding on someone's space. Visitors to the Steens Loop Road could be constrained by the presence of camps adjacent to the road. Camping in these areas could also increase the amount of litter and would result in rock rings and ashes at the overlooks and other locations. Current winter recreation opportunities would not be affected. However, cooperative management and snowmobiling opportunities would not be enhanced through developing an agreement with private landowners. By allowing recreational river use only when the Black Canyon gate on the South Steens Loop Road would be open, river use would be limited

to those few times when flows were adequate and the gate would be open. Not limiting visitor use at the overlooks, moving the overlook interpretive signs to the parking lots, and not requiring permits to visit the CMPA would not affect recreation.

SRPs would continue to be issued on a case-by-case basis. The SRP program would be managed to protect sensitive resources. Commercial, competitive, and organized group SRPs would not be affected.

Vehicle pullouts along the Steens Loop Road would not be constructed. Resource damage would continue to occur at heavily used locations. Resource damage could occur in new areas because vehicles could be parked anywhere along the Steens Loop Road.

Indirect Effects

Off-Highway Vehicles. *Planning Area* - The Alternative A OHV designations would maintain the current OHV and mechanized vehicle use opportunities. Cross-country travel would be allowed on the Alvord Desert playa and in many areas outside the CMPA. There would be very little concentration of use and very few user conflicts. OHV and mechanized vehicle users would not be displaced to areas outside the Planning Area. Opportunities for nonmotorized or mechanized recreation would be maintained. Those recreationists that rely on OHVs or mechanized vehicles; for example, some hunters; would visit the Planning Area.

CMPA - Motorized recreation access would not be affected in the CMPA. The general public would be able to drive the entire Steens Loop Road and side roads and visit all the overlooks. Access to the Big Indian and Little Blitzen trail heads would not be restricted. Commercial SRP holders would not be affected. Closing the core of the CMPA during the winter would continue to limit general public access.

AMU - The Alvord Desert playa would remain available to both OHV and mechanized vehicle use, thereby maintaining those recreation opportunities. No seasonal closures would be implemented. Therefore, winter and spring vehicle use in the Pueblo and Trout Creek Mountains would not be affected.

4.20.3.3 Alternative B

Recreation management would be kept to a minimal level. SRMAs would not be designated and all public land would become an ERMA. Congressionally and administratively designated areas (CMPA, WSRs, Steens Mountain Wilderness, WSAs, ACECs, etc.) would be subject to a minimum level of management. The Steens Mountain Recreation Lands designation would be removed.

Undeveloped recreation sites would be minimally managed. If natural processes would be jeopardized, undeveloped sites would be rehabilitated or closed.

Minimal management of existing undeveloped recreation sites would continue, while protecting natural processes. If natural processes would be jeopardized, sites(s) would be rehabilitated or closed.

Visitor use would be managed for minimum recreation opportunities through closures, regulations, or other means, to maximize natural processes. Group size would be limited for all activities in order to allow natural processes to be unimpaired.

Visitor experiences would be enhanced by continuing to provide information (e.g., maps and brochures) and education opportunities. New sign placement would be minimized. Existing signs would be maintained and replaced only as needed for public health and safety.

Current BCBs would be eliminated and new BCBs would not be designated. The Steens Mountain BCB designation would be removed because the Loop Road would be closed from the Kiger Overlook turnoff to west of the Blitzen River.

The Desert Trail Association MOU would be cancelled and the trail corridor would be removed from maps. Trailhead facilities would not be developed for the High Desert Trail.

Direct Effects

Planning Area
The emphasis on natural processes and de-emphasis of management and facilities development would affect future developed recreation opportunities and use. Dispersed recreation would also be affected; however, it may be either increased or decreased depending on the effects of group size limits, campsite closures, and the availability of naturalness and solitude opportunities Eliminating the BCBs would limit potential tourism and visitation based on these designations. In addition, removing the High Desert Trail from maps and discontinuing management under the MOU would reduce use of this trail corridor.

CMPA
Maintaining the Mann Lake Recreation Site in its present condition would allow the current resource damage and site problems to continue and would not address the increased use that would be anticipated with the paving of the East Steens Road. This increased use could displace current users who prefer the primitive setting. There could also be a change in the type of Mann Lake user as road improvements encourage different users and vehicles, possibly requiring a change in management direction. Maintaining the existing horse trailhead facility could have a number of effects on recreation. The existing Little Blitzen parking area would need to be expanded to accommodate existing horse use or day horse users would need to park along the South Steens Loop Road. Parking horse trailers and riding on the South Steens Loop Road pose serious safety concerns for both horses and their riders. Parking horse trailers in the South Steens Campground equestrian side would congest the campground and could occupy campsites that others may want to camp in. Not installing a toilet on the North Loop Road near Jackman Park would increase vehicle traffic through Fish Lake Campground and would not help address sanitation concerns on the private lands east of Fish Lake. Not developing a group camping area would require groups to stay in the campgrounds, thereby causing crowding and reducing the number of sites available to the general public. In many cases, group use affects other campers and detracts from their recreational experiences, so it would be preferable to separate groups from other campers. Designating Lily Lake as a day use area would help protect aspens and lake. Not providing trail access to the Fir Grove would reduce hiking and educational opportunities.

Trails would not be developed outside the Steens Mountain Wilderness, thereby limiting hiking to cross-country travel and roads and nonmotorized vehicles to designated roads.

Closing the listed areas to camping and restricting camping to developed campgrounds would limit overnight use and would increase day use. Visitors to the Steens Loop Road would not be constrained by the presence of camps in the overlooks and adjacent to the road. The trash, rock rings, and ashes associating with camping in these areas would be eliminated. People wishing to camp in the closed areas would be displaced to the campgrounds or locations outside the CMPA, thereby affecting current recreation use patterns and causing heavier campground use and crowding. The Steens Loop Road from the Kiger Gorge Overlook to west of Blitzen Crossing would be closed to motorized and mechanized vehicles so there would be no need to restrict parking or stopping on the Rooster Comb. South Steens Campground would only be accessible to hikers and horseback riders. Winter recreation opportunities would be reduced through the elimination of snowmobile use. Cooperative management and snowmobiling opportunities would not be enhanced through developing an agreement with private landowners. Nonmotorized winter recreation would not be affected. Recreational river use would not be allowed, thereby eliminating this opportunity. Limiting visitors to designated trails at the overlooks would constrain their activities and sense of exploration. Moving the overlook interpretive signs to the parking lots would not affect recreation. Requiring permits for all CMPA users would deter some users, especially if a fee would be charged. This, and closing a major section of the Steens Loop Road, would result in decreased use of the area.

Only the existing, long-term SRPs would be retained. No new SRPs would be issued for any activity. This could result in increased business for these permittees, but their activities would also be constrained by the road closures and use restrictions. Many commercial tours and organized groups would not visit the area, because they would not be issued a permit.

Vehicle pullouts along the Steens Loop Road would not be constructed. Resource damage would occur at heavily used locations and new areas because most of the Steens Loop Road would be closed.

AMU
No SRPs would be issued, which would eliminate all existing and future opportunities for commercial, competitive, and organized group recreation.

Indirect Effects

Social and Economic Values. Recreation and tourism would be allowed but not promoted.

Transportation and Roads. Road closures and limited maintenance would reduce motorized access to public lands and would limit motorized access to dispersed recreation sites, thus affecting those recreation opportunities.

Off-Highway Vehicles. *Planning Area* - The Alternative B OHV designations would minimize OHV and mechanized vehicle use opportunities with over half of the Planning Area designated as closed and the remainder designated as limited to designated roads and trails. This could concentrate use on the remaining designated roads, ways, and trails, and increase user conflicts. Many OHV and mechanized vehicle users would be displaced to areas outside the Planning Area. Recreation access by vehicles would be minimized, but opportunities for nonmotorized and nonmechanized recreation and access would be increased. Those recreationists that rely on OHVs or mechanized vehicles, for example, some hunters, would not visit the Planning Area. Use would increase at those sites and in those areas accessible by vehicle.

CMPA - Motorized and mechanized recreation access would be curtailed in the core of the CMPA because of the closure of most of the Steens Loop Road and the side roads into and through the Wilderness and WSAs. The general public would not be able to drive the Steens Loop Road or visit the East Rim or Wildhorse Overlooks. All access to Big Indian, Little Blitzen, Riddle Ranch, and South Steens Campground would be by foot or horse. Access to the existing Big Indian and Little Blitzen trail heads would be restricted. Use would increase at those sites and in those areas accessible by vehicle. Commercial SRP holders that currently offer motorized or mechanized tours and activities would be unable to provide them in all areas. Demand for hiking and horse trails and horse facilities could increase. Closing the entire CMPA during the winter would restrict public access and recreation opportunities, especially to those areas that would usually be accessible during the winter and where other resources would not be affected.

AMU - Closure of the Alvord Desert playa would displace all vehicle users to other similar areas in neighboring states, further affecting those areas. Seasonal closures would generally not affect OHV and mechanized vehicle use, other than delaying use of those roads until they would be dry enough to use without damaging other natural resources.

4.20.3.4 Alternative C

Direct Effects

Planning Area
The CMPA, Pueblo Mountains, and Trout Creek Mountains would be managed intensively for recreation. Sites where recreation use would be affecting resource values would be rehabilitated or closed. Both developed and dispersed recreation would be affected by increasing some opportunities and limiting others. Existing developed sites, campgrounds, and facilities would be maintained. Group size limits would be implemented to protect natural values. All of these actions would continue or limit existing opportunities under Alternative A. The effects from managing BCBs and the High Desert Trail would be the same as Alternative A.

CMPA
Maintaining the Mann Lake Recreation Site in its present condition would allow the current resource damage and site problems to continue and would not address the increased use that would be anticipated with the paving of the East Steens Road. This increased use could displace current users who prefer the primitive setting. There could also be a change in the type of Mann Lake user as road improvements encourage different users and vehicles, possibly requiring a change in management direction. Maintaining the existing horse trailhead facility could have a number of effects on recreation. The existing Little Blitzen parking area would need to be expanded to accommodate existing horse use or day horse users would park along the South Steens Loop Road. Parking horse trailers and riding on the South Steens Loop Road pose serious safety concerns for both horses and their riders. Parking horse trailers in the South Steens Campground equestrian side would congest the campground and could occupy campsites that others may want to camp in. Installing a toilet on the North Loop Road near Jackman Park would provide needed facilities, while reducing vehicle traffic through Fish Lake Campground, and could help address sanitation concerns on the private lands east of Fish Lake. Developing a group camping area within an existing campground could lead to crowding and would reduce the number of sites available to the general public. Physical separation of groups from other campers may not be feasible, so other campers may be affected by the presence and activities of groups. Designating Lily Lake as a day use area and installing

interpretive signs would protect aspens and lake and would provide an educational opportunity. Minimally maintaining of the route to the Fir Grove would provide a safe route for the public to use.

Hiking and nonmotorized trails would be developed outside the Steens Mountain Wilderness only where necessary to protect natural values. Only short reroutes to specifically address identified problems would be anticipated, therefore recreation opportunities would not be increased or enhanced.

Closing the listed areas to camping and restricting camping to developed campgrounds and designated dispersed sites outside the Steens Mountain Wilderness would constrain visitors' choices. However, there would be adequate numbers of identified dispersed camping locations to accommodate most campers. Visitors to the Steens Mountain Loop Road would not be constrained by the presence of camps adjacent to the road and in the overlooks. The trash, rock rings, and ashes associating with camping in these areas would be eliminated. People wishing to camp in the closed areas would be displaced to the campgrounds and/or designated dispersed sites, thereby affecting current recreation use patterns and causing heavier campground and/or dispersed site use and crowding. The Rooster Comb would be closed to motorized vehicles so there would be no need to restrict parking or stopping. Winter recreation opportunities would be reduced through the elimination of snowmobile use in association with the North Steens Loop Road. However, snowmobile use would be allowed on designated roads elsewhere in the CMPA. Cooperative management and snowmobiling opportunities would not be enhanced through developing an agreement with private landowners. Nonmotorized winter recreation would benefit from the development of a staging area along the North Steens Loop Road. By allowing recreational river use only when the Black Canyon gate on the South Steens Loop Road would be open and only when ORVs would not be affected, river use would be limited to those few times when flows were adequate and the gate would be open. Limiting visitors to designated trails at the overlooks would constrain their activities and sense of adventure. Moving the overlook interpretive signs to the parking lots would not affect recreation. Requiring permits for all Steens Loop Road users has the potential to deter some users, especially if a fee would be charged. This could result in decreased use of the Steens Loop Road.

Commercial, competitive, and organized group opportunities and activities would be maintained through the issuance of SRPs. The SRP program would be managed intensively to protect cultural and natural resource values. An allocation system would be developed and implemented to reduce resource impacts, improve visitor experiences, and support existing commercial recreation operations.

Vehicle pullouts along the Steens Loop Road would not be constructed. Resource damage would continue to occur at heavily used locations. Resource damage could occur in new areas because vehicles could be parked anywhere along the Steens Loop Road.

AMU
SRPs would be issued, except for the Alvord Desert playa. The SRP program would be managed intensively to protect cultural and natural resource values. If needed, an allocation system would be developed and implemented to reduce resource impacts, improve visitor experiences, and support existing commercial recreation operations.

Indirect Effects

Social and Economic Values. SRPs and some forms of recreation could be limited, thus reducing recreation opportunities.

Transportation and Roads. Road closures and limited maintenance would have the same effects as Alternative B.

Off-Highway Vehicles. *Planning Area* - The Alternative C OHV designations would reduce OHV and mechanized vehicle use opportunities with all use, outside of closed areas, limited to designated roads, ways, and trails. This could concentrate use on the designated roads, ways, and trails, and increase user conflicts. Some OHV and mechanized vehicle users could be displaced to areas outside the Planning Area. Opportunities for nonmotorized and nonmechanized recreation and access could be increased. Those recreationists that rely on OHVs or mechanized vehicles; for example, some hunters; may not visit the Planning Area.

CMPA - Motorized recreation access would be reduced in the core of the CMPA because of the closure of the Rooster Comb and some of the side roads into and through the Wilderness. The general public would not be able to drive the entire Steens Loop Road, but would be able to drive to the East Rim and Wildhorse Overlooks, Riddle Ranch, and South Steens Campground. Access to the Big Indian and Little Blitzen trail heads would not be restricted. Longer driving times could affect those visitors camping at South Steens Campground. However, the Rooster Comb and all side roads would

be available to mechanized (i.e., mountain bike) vehicles. Commercial SRP holders that currently offer motorized tours and activities would be unable to provide them in all areas. Closing the core of the CMPA during the winter would limit public access and recreation opportunities, but not appreciably more that the current seasonal closure.

AMU - Closure of the Alvord Desert playa would displace all OHV and mechanized vehicle users to other similar areas in neighboring states, further affecting those areas. Seasonal closures in the Pueblo and Trout Creek Mountains would generally not affect OHV and mechanized vehicle use, other than delaying use of those roads until they would be dry enough to use without damaging other natural resources.

4.20.3.5 Alternative D

Direct Effects

Planning Area
The CMPA, the Pueblo Mountains, and Trout Creek Mountains would be managed intensively for recreation. The emphasis on recreation opportunities and facility expansion would increase the availability of developed recreation. Dispersed recreation would also be affected; however, it may either increase or decrease depending on whether increased recreation and tourism promotes dispersed use or whether effects to naturalness and solitude would deter dispersed recreation. Management of existing and creation of new BCBs would promote tourism and recreation. The effects of managing High Desert Trail would be the same as Alternative A.

CMPA
Minimally improving the Mann Lake Recreation Site would reduce ongoing resource damage and improve site management, but would not address the increased use that would be anticipated with the paving of the East Steens Road. This increased use could displace current users who prefer the primitive setting. There could also be a change in the type of Mann Lake user as road improvements encourage different users and vehicles, possibly requiring a change in management direction. Developing a horse trailhead facility could have a number of effects on recreation. The existing Little Blitzen parking area would not need to be expanded nor would day horse users need to park along the South Steens Loop Road. If the trailhead facility would be located in South Steens Campground, the equestrian side could become very congested with the additional traffic and trailer parking. Designing connecting trails would reduce safety concerns and limit resource damage. This facility has the potential to attract additional horse users to the area. Installing a toilet on the North Loop Road near Jackman Park would provide needed facilities, while reducing vehicle traffic through Fish Lake Campground, and could help address sanitation concerns on the private lands east of Fish Lake. Developing a group camping area on private land would help accommodate existing group use, provide a needed facility, help maintain the atmosphere in the existing campgrounds, and foster cooperative management. Maintaining Lily Lake as a dispersed recreation site would allow the existing uses and concerns to continue. Not providing trail access to the Fir Grove would reduce hiking and educational opportunities.

Developing hiking and nonmotorized trails outside the Steens Mountain Wilderness, where needed to protect resources and to provide for public health and safety, could provide additional hiking and mountain biking opportunities.

Allowing camping and overnight use at the overlooks would deter many visitors from spending time there because they would feel that they would be intruding on someone's space. This could also increase the amount of litter and would result in rock rings and ashes at the overlooks. People wishing to camp in the Little Wildhorse RNA would be displaced to surrounding areas. The continued use of campsites in the Little Blitzen and Rooster Comb RNAs would not affect current recreation use patterns. Overnight use at Wildhorse Lake would be limited by restricting campers to designated sites and by not allowing pack stock. A reservation system may need to be implemented for camping at Wildhorse Lake. Restricting parking or stopping on the Rooster Comb would increase public safety and decrease driving hazards on this narrow, winding stretch of the Steens Loop Road. Proving safe pullouts or parking areas at either end of the narrow stretch would safely accommodate public viewing of Big Indian. Winter recreation opportunities would be enhanced through the development of a staging area, cross-country ski trails, and a nonmotorized play area. These facilities would increase permitted use of North Steens Loop Road during the winter. Permitting the general public to snowmobile on the North Steens Loop Road to the Kiger Overlook, the Dingle Creek Road, and the Cold Spring Road to 3/4 mile west of the Nye Place would increase the motorized winter recreation opportunities. Motorized winter access to the Wildhorse parking area with an authorized SRP holder would further enhance these opportunities, but there were important safety concerns with allowing use beyond the Kiger Overlook turnoff. Cooperative management and snowmobiling opportunities would be enhanced through developing an agreement with private landowners. Allowing camping anywhere that would be more than one half mile from a developed campground, unless otherwise restricted, would not

affect recreation because there would be few public land dispersed campsites that close the campgrounds. By allowing recreational river use only when the Black Canyon gate on the South Steens Loop Road would be open and only when ORVs would not be affected, river use would be limited to those few times when flows would be adequate and the gate would be open. Encouraging visitors to stay on designated trails at the overlooks, moving the overlook interpretive signs to the parking lots, and not requiring permits to visit the CMPA would not affect recreation.

Commercial, competitive, and organized group opportunities and activities would be enhanced through the issuance of SRPs. However, increased permitted use could lead to crowding at popular sites and areas unless the program would be managed intensively. If needed, an allocation system would be developed and implemented to reduce resource impacts, improve visitor experiences, and support existing commercial recreation operations.

Vehicle pullouts along the Steens Loop Road would encourage motorists to stop and enjoy the area. The pullouts would be located where heavy use would already be causing resource damage and in areas that would be able to withstand heavy use, thereby reducing the number of locations affected by use.

AMU
A toilet and fire rings would be installed in the Frog Spring area. A toilet would also be installed and maintained at Pike Creek, in cooperation with the private landowner. A staging area with information and a toilet would be provided near the mouth of Wildhorse Canyon.

All AMU RNAs and Mickey Hot Springs would be closed to camping. Toilets would be installed and maintained at Cottonwood Creek, Frog Spring, and other dispersed campsites. Other dispersed users would be encouraged to pack out all solid human waste. Routes for mechanized vehicles (i.e., mountain bikes) would be developed as demand warrants.

SRPs would be issued, as needed, to meet the demand for permits, while protecting cultural and natural resource values and providing for public safety. If needed, allocations, such as limits on party size, number of trips and/or number or permittees, would be implemented. SRPs for organized group and commercial use of the Alvord Desert playa could be issued if the wilderness values of the Alvord Desert WSA would not be impaired.

SRPs would be issued. The SRP program would be managed to protect cultural and natural resource values. If needed, an allocation system would be developed and implemented to reduce resource impacts, improve visitor experiences, and support existing commercial recreation operations.

Indirect Effects

Social and Economic Values. Recreation would be promoted and developed in an attempt to balance social, economic, cultural, and ecological components; recreation opportunities would be expanded, and both developed and dispersed recreation may increase.

Transportation and Roads. Winter access for motorized uses and access to dispersed campsites would be expanded, increasing access for recreational uses.

Off-Highway Vehicles. *Planning Area* - The Alternative D OHV designations would maintain OHV and mechanized vehicle use opportunities similar to the Alternative A OHV designations. Cross-country travel would be allowed only on the Alvord Desert playa. There would be little concentration of use and few user conflicts. OHV and mechanized vehicle users would not be displaced to areas outside the Planning Area. Opportunities for nonmotorized or mechanized recreation could be maintained. Those recreationists that rely on OHVs or mechanized vehicles (i.e., some hunters) would probably visit the Planning Area.

CMPA - Motorized recreation access would not be affected in the CMPA, except on the west end of the Bone Creek Road. The general public would be able to drive the entire Steens Loop Road and side roads and visit all the overlooks. Access to the Big Indian and Little Blitzen trail heads would not be restricted. Commercial SRP holders would not be affected. Closing the core of the CMPA during the winter would restrict public access and recreation opportunities, but not appreciably more that the current seasonal closure.

AMU - The Alvord Desert playa would remain available to both OHV and mechanized vehicle users, thereby maintaining those recreation opportunities. Seasonal closures would generally not affect OHV and mechanized vehicle use, other than delaying use of those roads until they would be dry enough to use without damaging other natural resources.

4.20.3.6 Alternative E

Direct Effects

Planning Area
The CMPA, Pueblo Mountains, and Trout Creek Mountains would be managed intensively for recreation. The emphasis on developing tourism, recreation opportunities, and new facilities would affect both developed and dispersed recreation. Developed recreation would be promoted and increased while dispersed recreation may either increase or decrease, depending on whether new facilities and opportunities encourage dispersed use or whether effects to naturalness and solitude deter dispersed recreation. Management of existing and development of new BCBs would promote tourism and recreation. The effects of managing High Desert Trail would be the same as Alternative A.

CMPA
Upgrading the Mann Lake Recreation Site would increase camping opportunities for those who prefer more developed camping. Conversely, those who like a more primitive setting could be displaced to other areas near Mann Lake. Developing a horse trail head facility could have a number of effects on recreation. The existing Little Blitzen parking area would not need to be expanded nor would day horse users need to park along the South Loop Road or in the equestrian side of South Steens Campground. Designing connecting trails would reduce safety concerns and limit resource damage. However, this facility has the potential to attract additional horse users to the area. Installing toilets at the three main overlooks would provide needed facilities and would protect human health. Developing a group camping area on private land would help accommodate existing group use, provide a needed facility, help maintain the atmosphere in the existing campgrounds, and foster cooperative management. Installation of a toilet at Lily Lake would increase both day and overnight use at the site. Marking and minimally maintaining the route to the Fir Grove and providing parking and information would enhance hiking and educational opportunities. This short hike would provide an alternative activity that could attract users away from other heavily used trails.

Developing hiking and nonmotorized trails would provide additional hiking and mountain biking opportunities.

Camping locations would not be restricted. Allowing camping and overnight use at the overlooks would deter many visitors from spending time there because they would feel that they would be intruding on someone's space. This could also increase the amount of litter and would result in rock rings and ashes at the overlooks. Restricting parking or stopping on the Rooster Comb would increase public safety and decrease driving hazards on this narrow, winding stretch of the Steens Loop Road. Winter recreation opportunities would be enhanced through the development of a staging area, cross-country ski trails, and a nonmotorized play area. These facilities, coupled with unrestricted motorized access, would increase use of North Steens Loop Road during the winter. Allowing snowmobile use on all designated roads, including the South Steens Loop Road, would further enhance motorized winter recreation opportunities, but could affect the experiences of nonmotorized winter recreationists. Allowing camping anywhere, unless otherwise restricted, would not affect recreation. With the South Steens Loop Road open to South Steens Campground during the winter and spring, opportunities for floating the Donner und Blitzen River would increase. Not restricting visitor use at the overlooks, moving the overlook interpretive signs to the parking lots, and not requiring permits to visit the CMPA would not affect recreation.

Commercial, competitive, and organized group opportunities and activities would be enhanced through the issuance of SRPs. However, increased permitted use could lead to crowding at popular sites and areas unless the program would be managed intensively.

Vehicle pullouts along the Steens Loop Road would encourage motorists to stop and enjoy the area. Regularly spaced pullouts could spread out use, but could also concentrate use at areas that may not be suitable for heavy visitor use.

AMU
SRPs would be issued. Emphasis of commercial, competitive, and organized group use opportunities would lead to increased use and effects.

Indirect Effects

Social and Economic Values. Recreation and tourism opportunities would be emphasized and would increase developed and dispersed recreation opportunities. However, dispersed recreation may decrease as a result of decreased naturalness and solitude.

Transportation and Roads. No route closures would be proposed. Access would be increased, including winter motorized access and access to dispersed campsites. The greatest amount of motorized access for recreational use would be allowed.

Off-Highway Vehicles. *Planning Area* - The Alternative E OHV designations would maintain OHV and mechanized vehicle use opportunities similar to the Alternative A OHV designations. Cross-country travel would be allowed on the Alvord Desert playa and in many areas outside the CMPA. There would be very little concentration of use and very few user conflicts. OHV and mechanized vehicle users would not be displaced to areas outside the Planning Area. Opportunities for nonmotorized and nonmechanized recreation would be decreased. Those recreationists that rely on OHVs or mechanized vehicles (i.e, some hunters) would visit the Planning Area.

CMPA - Motorized recreation access would not be affected in the CMPA. The general public would be able to drive the entire Steens Loop Road and side roads and visit all the overlooks. Access to the Big Indian and Little Blitzen trail heads would not be restricted. Commercial SRP holders would not be affected. Closing the upper Steens Mountain area during the winter would restrict public access, but allowing unrestricted access to the 5600' level on the North Steens Loop Road and to South Steens Campground on the South Steens Loop Road would expand winter recreation opportunities throughout the core of the CMPA.

AMU - The Alvord Desert playa would remain available to both OHV and mechanized vehicle users, thereby maintaining those recreation opportunities. No seasonal closures would be implemented. Therefore, winter and spring vehicle use in the Pueblo and Trout Creek Mountains would not be affected.

4.20.4 Summary of Effects

Alternative B would limit recreation the most of all the alternatives. Alternative A would continue the status quo and would not address future needs for resource protection or potential increased recreation demand. Alternative C provides more recreation opportunities than either Alternative A or B but may fall short of meeting the future demand for recreation. Alternative D would be the only alternative that promotes recreation and visitation while protecting resource values and encouraging cooperative agreements. Alternative E maximizes recreational opportunities but does not provide as much resource protection as any of the other alternatives.

4.20.5 Cumulative Effects

Management actions relating to other resources on lands within and adjacent to the Planning Area could result in cumulative effects to recreation. Although the population within the Planning Area has declined in recent years, urban growth and increasing populations in areas such as Bend and Portland would have the potential to increase recreation uses.

4.21 Areas of Critical Environmental Concern

4.21.1 Goals and Objectives

Goal - Retain existing and designate new ACECs where relevance and importance criteria would be met and special management would be required to protect the identified values.

Objective 1. Retain and manage existing ACECs if they meet relevance and importance criteria and require special management or protection.

Objective 2. Designate and manage new ACECs that meet relevance and importance criteria and need special management or protection.

4.21.2 Assumptions

All ACEC alternatives would avoid disturbances to all special status plant and animal populations in all ACECs where they occur. In addition, general inventories, monitoring and research would continue for special status plants, and conservation agreements would be written for all BLM sensitive plant species.

Under Alternatives A, C, D, and E, wildland fires in all ACECs and RNAs would be managed according to appropriate management response; however, some ACECs would be analyzed for possible wildland fire use. Use of heavy equipment in ACECs, WSAs, and RNAs would be avoided and would require line officer approval. Use of retardant would be

allowed within these areas for initial attack. Retardant use during extended attack would be considered as a part of the wildland fire situation analysis, considering the resource values at risk. If used, heavy equipment would be restricted to existing roads and trails. Prescribed fire would be used in ACECs where it can be shown to preserve the desired characteristics of the ACEC and to meet management objectives.

Under all ACEC alternatives, noxious weeds would be aggressively controlled using integrated weed management methods such as biological control, site-specific spraying, and grubbing by hand, consistent with protection and enhancement of relevant and important values. Any weed control measures proposed in WSAs within ACECs would be consistent with WSA IMP direction. Weed control measures proposed within wilderness or WSRs would be consistent with legislation covering those areas.

All management actions for those portions of the ACECs within a WSA would be governed by the WSA IMP until such time as Congress makes a determination regarding wilderness designation for the area. Any WSAs, or portions thereof, designated as an ACEC and later released from WSA status would be managed according to the applicable management direction for that ACEC. Under some alternatives, the proposed ACEC management within WSAs may be more restrictive than the WSA IMP, such as closing an area to livestock grazing or limiting vehicle use to designated roads and trails rather than existing roads and trails. Six proposed or existing ACECs overlap with existing WSAs.

All management actions for ACECs located within wilderness or WSRs would be governed by the Wilderness Act or the WSR Act as amended.

Nondestructive research would be encouraged in all of the proposed and existing ACECs and would not be limited only to those areas that have RNAs. Any research would need to be authorized by the BLM in writing and where necessary, permitted. It would be assumed that the resultant data and information gathered would be shared with the BLM to help guide management of these areas.

Recreational activities would not be encouraged within ACECs unless the ACEC was designated with recreational use in mind. Commercial use, or use requiring a special permit, which occurs or would be proposed to occur within an ACEC, would be evaluated on a case-by-case basis and would be permitted, modified, or prohibited as needed to protect the ACEC values. Camping would be prohibited in RNA/ACECs but allowed in ACECs.

According to 43 CFR 3809.11, an approved plan of operations would be required prior to commencing any operation, except casual use, involving locatable minerals in a designated ACEC, regardless of the size of disturbance.

4.21.3 Analysis of Alternatives

Alvord Desert ACEC

Alternative A

The ACEC designation and current management would continue. The size of the ACEC would remain at 17,933 acres. Recreation in the form of OHV and mechanized vehicle use could damage unique vegetation communities adjacent to the Alvord Desert.

Alternative B

The ACEC designation would be revoked; however, the area would remain a WSA with a focus on maximizing natural processes and limiting access and use. The area would continue to be managed under the WSA IMP until Congress designates the area as wilderness or releases it from WSA status. Management under the WSA IMP would be similar in all respects to the ACEC management under Alternative A.

Alternative C

The ACEC designation would continue and the size would be increased to 21,615 acres, for increased protection of the special values. The effects of the management under this alternative would be increased protection of the relevant and important values and resources such as vegetation, soils, water resources, and wildlife. Mineral and grazing management would be the same as Alternative A and would not create any additional effects.

Alternative D

The ACEC designation would continue and the size would be increased to 21,615 acres, for increased protection of the special values. Management under this alternative would be similar to Alternative C; however, ROWs and realty use authorizations would not be excluded but rather managed for avoidance as in Alternative A. Restrictions on OHV and mechanized vehicle use may decrease visitation and increase protection of the relevant and important values and resources such as vegetation, soils, water resources, and wildlife. Otherwise, this alternative would have the same effects as Alternative A.

Alternative E

The ACEC designation would be revoked; however, the area would still be managed as a WSA under the WSA IMP. Management under the WSA IMP would be similar in all respects to the ACEC management under Alternative A. Less restrictive management would be applied to maximize commodity production and use, thus allowing increased transportation, recreation and OHV and mechanized vehicle use and minimizing protection of the relevant and important values of diverse desert landforms and plant communities.

Alvord Peak ACEC

Alternatives A and C

The ACEC designation and current management would continue and the size of the ACEC would remain at 14,040 acres. These alternatives would not result in any new or additional effects to natural resources or resource uses.

Alternatives B, D, and E

The ACEC designation would be revoked. Since the ACEC would be located entirely within the Steens Mountain Wilderness, it would be subject to management under the Steens Act and the Wilderness Act with all of the limits and resource protection provided by such. In addition, wildlife management conducted by the ODFW to protect the bighorn sheep in this area would continue. Therefore, the effects from these alternatives would be the same as Alternatives A and C.

Borax Lake ACEC

Alternative A

The ACEC designation and current management would continue, and the size of the ACEC would remain at 520 acres. Management actions proposed for this ACEC would not result in any new or additional effects to the critical habitat for the federally endangered Borax Lake Chub.

Alternative B

The ACEC designation would be revoked and special protection for the Borax Lake Chub would be provided only through the management emphasis on maximizing natural processes and discouraging use. Since the area would be within the mineral withdrawal area, and grazing would not be allowed either inside or outside the fenced part of the ACEC, there would be no effects to the critical habitat for the Borax Lake Chub.

Alternative C

The ACEC designation and management would continue. This alternative would provide the greatest protection for the critical habitat of the Borax Lake Chub by increasing the size of the ACEC to 600 acres, closing the roads to OHV use, closing the area to new ROWs or realty use authorizations, and closing the fenced area to livestock grazing. Those changes would reduce or eliminate ground disturbing activities caused by vehicles or livestock.

Alternative D

The ACEC designation would continue and the size would be increased to 600 acres. Activities proposed under this alternative would be similar to Alternative C except that ROWs and realty use authorizations would be based on avoidance rather than exclusion, and the BLM would pursue acquisition of private inholdings The acquisition of the

private lands within the ACEC would allow the BLM to better manage the area as a whole. It would create an additional workload for management of the Borax Lake Chub's major critical habitat, which would be the lake itself. The effects from the management actions would be similar to Alternative C.

Alternative E

The ACEC designation would be revoked and special protection for the critical habitat of the Borax Lake Chub would no longer be provided. The use of the Borax Lake area by OHV and mechanized vehicle users and sightseers would be limited to designated routes. The area would continue to have protection from minerals and leasing actions and grazing would be controlled by a workable allotment management plan. The effects of the management actions would be the same as under Alternative A.

East Kiger Plateau RNA/ACEC

Alternatives A and D

The RNA/ACEC designation and current management would continue and the size of the RNA/ACEC would remain at 1,216 acres. The management prescriptions applied to this area would not result in any new or additional effects to the relevant and important values associated with this ACEC.

Alternative B

The designation would be revoked, leaving the area to be managed as wilderness and WSA. The relevant and important values would be protected by wilderness and WSA status as well as the actual remoteness of the site.

Alternative C

The area would continue to be designated as a RNA/ACEC and the size would remain at 1,216 acres. This alternative provides the maximum protection of the special values. All management and effects to the relevant and important values would be the same as Alternative A.

Alternative E

The RNA/ACEC designation would be revoked and the area would be managed as wilderness and WSA. The relevant and important values would be protected by wilderness and WSA status as well as the actual remoteness of the site. Commodity benefits would not be realized due to the complete remoteness of the area.

Kiger Mustang ACEC

Alternative A

The current designation and management would continue and the size of the ACEC would remain at 31,725 acres. This ACEC would be in the mineral withdrawal area, so minerals or leasing actions would not affect the values in any of the alternatives. Most of the area would be managed as a WSA under the WSA IMP and the rest has no other special designation. Outside the WSA, the area would be open for OHV and mechanized vehicle use, which may change the pattern of use by wild horses if OHV and mechanized vehicle use increases. The management prescriptions associated with this alternative would not result in any new or additional effects to the relevant and important values.

Alternative B

The ACEC designation would be revoked and management of this area would be either directed by the WSA IMP or the same as the adjacent areas that have no special designation. Although WSA management would be similar to Alternative A, it would not provide specific protection of the special values. If the WSA were released from WSA status, the entire area would be managed consistent with the surrounding area with an emphasis on natural processes.

Alternative C

The designation of the ACEC would continue and the size would remain at 31,725 acres. This alternative would be similar to Alternative A except that it would be more restrictive. The area would remain open to livestock grazing, so wild horses and livestock would still compete for forage resources. Most of the ACEC would be within a WSA and would be managed under the WSA IMP. There would be little or no effect to management of wild horses under this alternative.

Alternative D

The designation of the ACEC would continue and the size would remain at 31,725 acres. Livestock grazing would continue and wild horses and livestock would continue to compete for forage. Most of the other commodity resources would not be allowed in this ACEC, which would decrease the conflicts with wild horses. Recreation, in the form of hunting and sightseeing, may affect on management in this ACEC if the use increases.

Alternative E

The ACEC designation would be revoked and management of this area would be directed by the WSA IMP in the WSA and as consistent with the adjacent areas outside the WSA. Increased recreation use could have the same effect as Alternative D. An increase in livestock grazing would have a direct effect on the amount of competitive forage available for wild horses.

Little Blitzen RNA/ACEC

Alternative A

The RNA/ACEC designation and current management would continue and the size of the RNA/ACEC would remain at 2,530 acres. This area would be entirely within the Steens Mountain Wilderness so all commodity production would be excluded. Since recreation use would be expected to be concentrated in other areas, no effects would be expected in the RNA/ACEC. This alternative would not result in any new or additional effects to relevant and important values.

Alternatives B and E

The RNA/ACEC designation would be revoked. The area would be managed as wilderness under the Wilderness Act, which would provide specific protection for relevant and important values from commodity sources such as grazing and minerals. The lack of the ACEC designation would not impair protection of the resources. An increase in recreation use could affect resources in this area in extreme circumstances.

Alternatives C and D

The area would continue to be designated as an RNA/ACEC covering 2,255 acres. The RNA/ACEC would be reduced by 275 acres, but management would be the same as Alternative A. The effect of management actions would also be the same as under Alternative A.

Little Wildhorse Lake RNA/ACEC

Alternatives A, C, and D

The RNA/ACEC would continue to be designated and current management would continue. The size of the RNA/ACEC would remain at 241 acres. The area would be completely within the Steens Mountain Wilderness, so all commodity production would be basically excluded. The relevant and important values could be affected by recreation use if dispersed use increases in and around the lake.

Alternatives B and E

The RNA/ACEC designation would be revoked. The area would be managed as part of the Steens Mountain Wilderness under the Wilderness Act, which provides protection to the relevant and important values from commodity sources such as grazing and minerals. Even without the designation as an ACEC, the area would be protected, although it could be affected through an increase in dispersed recreation. Although the area would remain under restrictive management

protocol, similar to Alternative A, the management would not provide specific protection of the special value aquatic ecosystem. Nevertheless, the overall effects would be the same as Alternative A.

Long Draw RNA/ACEC

Alternative A

The RNA/ACEC designation and current management would continue and the size of the RNA/ACEC would remain at 441 acres. Since the RNA/ACEC would be entirely within the Hawk Mountain and Rincon WSAs, the area would be managed according to the WSA IMP. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

The RNA/ACEC designation would be revoked and the area would be managed under the WSA IMP. Grazing would have no effect on relevant and important values in Alternative B, but could have an effect in Alternative E by trampling and removal of vegetation.

Alternative C

The RNA/ACEC would continue to be designated and managed and the size would be 441 acres. The effects from this alternative would be similar to Alternative A. The result of the stricter management prescriptions would be increased protection of the special plant community and the other natural resources within the RNA/ACEC.

Alternative D

The effects from this alternative would be similar to Alternative A except that OHV and mechanized vehicle use would be limited to designated roads. Although the area would be open to mineral leasing, it would be designated as an NSO area. The result of these management prescriptions would be slightly increased protection of the special value plant community and the other natural resources within the RNA/ACEC.

Mickey Basin RNA/ACEC

Alternative A

Current management would continue and the size of the RNA/ACEC would remain at 560 acres. Since the RNA/ACEC would be entirely within the East Alvord WSA, the area would be managed according to the WSA IMP. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

These alternatives would eliminate the RNA/ACEC designation and the area would be managed under the WSA IMP. Although the area would remain under restrictive management protocol, similar to Alternative A, the management would not provide specific protection of the special value plant community.

Alternative C

The effects from this alternative would be similar to Alternative A except that the RNA/ACEC would be an exclusion area for ROWs rather than an avoidance area, and OHV and mechanized vehicle use would be limited to designated roads. The result of the stricter management prescriptions would be increased protection of the special value plant community and the other natural resources within the RNA/ACEC.

Alternative D

The effects from this alternative would be similar to Alternative A except that OHV and mechanized vehicle use would be limited to designated roads. The result of this management prescription would be slightly increased protection of the special value plant community and the other natural resources within the RNA/ACEC.

Pickett Rim ACEC

Alternative A

Current management would continue and the size of the ACEC would remain at 3,941 acres. This alternative would not result in any new or additional effects to natural resources or resource uses.

The existing ACEC designation and boundaries would be retained. The area would continue to be managed as VRM Class II. The roads within the ACEC would be maintained as needed for access. OHV and mechanized vehicle use would be limited to existing roads and trails. The area would continue to be open to new ROWs or other realty use authorizations.

The area within the Pickett Rim ACEC would be open to leasable and locatable mineral entry and saleable mineral removal. The ACEC would be located within the LaVoy Tables Grazing Allotment and would be open to grazing from April until November. Grazing would be under the control of existing permit stipulations and an approved grazing system. Any proposed changes in grazing use or new range improvement projects would be evaluated for effects, and permitted if relevant and important values would be maintained or enhanced. Where effects would be identified, livestock use or range improvement projects would be adjusted. The ACEC would be open for collection or removal of plant materials.

Alternatives B, D, and E

These alternatives would eliminate the ACEC management of the Pickett Rim area, and would be the same as that prescribed for the adjacent area. There would not be any specific protection of the birds of prey or their habit under these alternatives.

Alternative C

The existing ACEC designation and boundaries would be retained. Management restrictions would be increased, including limiting OHV and mechanized vehicle use to designated routes and excluding new ROWs or other realty use authorizations except for access needs to nonpublic property. In addition, the area would be withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal. Management under this alternative would result in decreased use and development and increased protection of the birds of prey and their habitat.

Pueblo Foothills RNA/ACEC

Alternative A

Current management would continue and the size of the RNA/ACEC would remain at 2,503 acres. Since the RNA/ACEC would be entirely within the Pueblo Mountain WSA, the area would be managed according to the WSA IMP. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

These alternatives would eliminate the RNA/ACEC designation and the area would be managed under the WSA IMP. Although the area would remain under restrictive management protocol, similar to Alternative A, the management would not provide specific protection of the special value plant community.

Alternative C

The effects from this alternative would be similar to Alternative A except that the RNA/ACEC would be reduced in size by 79 acres so that it totals 2,255 acres. It would also be an exclusion area for ROWs rather than an avoidance area, OHV and mechanized vehicle use would be limited to designated roads, and the area would be closed to locatable and leasable minerals development. The result of the stricter management prescriptions in the remaining RNA/ACEC area would be increased protection of the special value plant community, special status plants, and the other natural resources.

Alternative D

The effects from this alternative would be similar to Alternative A except that the RNA/ACEC would be reduced by 79 acres and would total 2,255 acres. In addition, OHV and mechanized vehicle use would be limited to designated roads, and although the area would be open to mineral leasing, it would be designated as an NSO area. The result of these

management prescriptions in the remaining RNA/ACEC area would be slightly increased protection of the special value plant community and the other natural resources.

Rooster Comb RNA/ACEC

Alternative A

Current management would continue and the size of the RNA/ACEC would remain at 716 acres. Since the RNA/ACEC would be within the Steens Mountain Wilderness, it would continue to be managed according to the Wilderness Act. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

These alternatives would eliminate the RNA/ACEC designation and the area would be managed under the Wilderness Act. Although the area would remain under restrictive management protocol, similar to Alternative A, the management would not provide specific protection of the special value riparian vegetation communities.

Alternatives C and D

The effects from these alternatives would be the same as Alternative A except that 33 acres would be dropped on the south side of the Steens Loop. The remaining RNA/ACEC would be 683 acres and would be managed in accordance with the Wilderness Act.

South Fork Willow Creek RNA/ACEC

Alternative A

Current management would continue and the size of the RNA/ACEC would remain at 231 acres. Since the RNA/ACEC would be within the Steens Mountain Wilderness, it would continue to be managed according to the Wilderness Act. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

These alternatives would eliminate the RNA/ACEC designation and the area would be managed under the Wilderness Act. Although the area would remain under restrictive management protocol, similar to Alternative A, the management would not provide specific protection of the special value plant communities and special status plants.

Alternatives C and D

The effects from these alternatives would be the same as Alternative A except that 45 acres would be dropped on the west side of the Steens Loop Road. The remaining RNA/ACEC would be 186 acres and would be managed in accordance with the Wilderness Act.

Steens Mountain ACEC

Alternative A

The current management would continue and the size of the ACEC would remain at 57,501 acres. The ACEC would be contained within a large part of the Steens Mountain Wilderness as well as some areas of WSA and non-WSA. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B, D, and E

These alternatives would eliminate the ACEC designation and the area would be managed under the Wilderness Act, the WSA IMP, and in accordance with the adjacent lands. Although some of the area would remain under restrictive management protocol, similar to Alternative A, the management would not provide specific protection of the high scenic values.

Alternative C

The existing ACEC designation and boundaries would be retained and the management prescriptions would be similar to Alternative A except that the entire ACEC would be designated as VRM Class I, and new ROWs and other realty use authorizations would be excluded except for access needs to nonpublic property. The result of the stricter management prescriptions would be increased protection of the high scenic values and the other natural resources within the ACEC.

Tum Tum Lake RNA/ACEC

Alternative A

Current management would continue and the size of the ACEC would remain at 2,064 acres. This alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

These alternatives would eliminate the ACEC designation and the area would be managed consistent with the management prescriptions on adjacent lands. Although management would be similar to Alternative A, it does not provide specific protection of the unique plant communities or special status species.

Alternative C

The RNA/ACEC designation would be retained; however, 375 acres would be dropped due to unmanageability and surface disturbance. The size of the RNA/ACEC would be 1,689 acres. Management restrictions would be applied to OHV and mechanized vehicle use, ROWs or other realty use authorizations, minerals and grazing, and the area would be designated as VRM Class II. Increased restrictions would result in the highest level of protection for the unique plant communities, special status plants, and the special status fish species.

Alternative D

The RNA/ACEC designation would be retained; however, the size would be reduced by 375 acres, as with Alternative C. Some restrictions would be applied such that OHV and mechanized vehicle use would be limited to designated routes, new ROWs or other realty use authorizations would be avoided, and the area would be closed to saleable mineral removal and livestock grazing. Management would not be as strict as Alternative C; therefore, protection of the special values would be greater than all alternatives except for Alternative C.

Proposed Big Alvord Creek RNA/ACEC

Alternative A

The RNA/ACEC would not be designated and management would continue in accordance with the Wilderness Act. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Visual resources would be managed as VRM Class I. There would be no roads in this RNA/ACEC, and the entire area would be closed to OHV and mechanized vehicle use. The area would be an exclusion area for new ROWs or other realty use authorizations. The area would be withdrawn from locatable and leasable mineral entry, closed to saleable material removal, and closed to grazing.

Alternatives B and E

The RNA/ACEC would not be designated. The management prescriptions and effects would be exactly the same as Alternative A.

Alternatives C and D

The RNA/ACEC would be designated and would encompass 1,676 acres. However, since the RNA/ACEC would be entirely within the Steens Mountain Wilderness, the management would be identical to that outlined in Alternative A. The only additional effect of the designation would be recognition of the special value plant communities and possible future management direction, based on the designation and protection of the special values.

Proposed Catlow Redband Trout ACEC

Alternative A

Current management would continue and the ACEC would not be designated. The portion within the Steens Mountain Wilderness would be managed in accordance with the Wilderness Act while the rest would be managed the same as prescribed for the adjacent areas. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B, D, and E

The ACEC would not be designated. The management and effects would be exactly the same as under Alternative A with no specific protection of the Catlow Redband Trout or its habitat.

Alternative C

The proposed ACEC would be designated as the Catlow Redband Trout ACEC covering 6,800 acres. Management restrictions would be implemented for the entire ACEC such that OHV and mechanized vehicle use would be limited to designated routes outside the wilderness and closed inside the wilderness, ROWs or other realty use authorizations would be excluded, and the ACEC would be withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal. Visual resources would be designated as VRM Class I in the wilderness and VRM Class II in the rest of the ACEC.

Proposed East Fork Trout Creek RNA/ACEC

Alternative A

Current management would continue and the RNA/ACEC would not be designated. The site would be in the Mahogany Ridge WSA, so management would continue in accordance with the WSA IMP until such time as Congress designates the area as wilderness or releases it from WSA status. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

The RNA/ACEC would not be designated. The management and effects would be exactly the same as under Alternative A, with no specific protection of the unique plant communities.

Alternative C

The proposed RNA/ACEC would be designated as the East Fork Trout Creek RNA/ACEC covering 361 acres. Some additional management restrictions would be imposed including limiting OHV and mechanized vehicle use to designated routes, and excluding new ROWs or other realty use authorizations except for access needs to nonpublic property. The area would also be withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal and livestock grazing, and visual resources would be designated as VRM Class I. The effects would be minimal use and disturbance and maximum protection of the special value plant communities and associated resources.

Alternative D

The proposed RNA/ACEC would be designated as the East Fork Trout Creek RNA/ACEC covering 361 acres. Management under this alternative would not be as strict as Alternative C; however, it would be stricter than Alternative A and would therefore result in increased protection of the special value plant communities and associated resources.

Proposed Fir Groves ACEC

Alternative A

Current management would continue and the ACEC would not be designated. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Since no ACEC would be designated, existing prescriptions would apply. The site would be managed as VRM Class II. The roads in the area would be maintained in the existing roadway as needed for access. The area would be closed to OHV and mechanized vehicle use. The area would be open for new ROWs or other realty use authorizations within the provisions of the Steens Act.

The area would be withdrawn from locatable and leasable mineral entry and closed to saleable material removal. The area would be located within the Bridge Creek Grazing Allotment and would be grazed periodically during the spring and summer. The area would be open to collection of plant materials.

Alternatives B and E

The ACEC would not be designated. The management and effects would be exactly the same as under Alternative A with no specific protection of the grand fir stand.

Alternative C

The proposed ACEC would be designated as the Fir Groves ACEC covering 477 acres. Some additional management restrictions would be imposed, including exclusion of new ROWs or other realty use authorizations except for access needs to nonpublic property. The area would also be withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal and livestock grazing. In addition, the dense stand of trees along Little Fir Creek would be mechanically thinned to protect the site from catastrophic fire incidents and to allow for development of understory vegetation. The effects would be minimal use with some active management and maximum protection of the grand fir stand and associated natural resources.

Alternative D

The proposed ACEC would be designated as the Fir Groves ACEC covering 477 acres. Management under this alternative would not be as restrictive as Alternative C. However, it would result in increased protection of the grand fir stand.

Proposed Mickey Hot Springs ACEC

Alternative A

Current management would continue and the ACEC would not be designated. A portion of the site would be in the East Alvord WSA and would be managed in accordance with the WSA IMP until such time as Congress designates the WSA as wilderness or releases it from WSA status. The rest of the area would continue to be managed as prescribed for the adjacent areas. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and C

The proposed Mickey Hot Springs ACEC would be designated. The size of the ACEC would be 42 acres, or all of the land within the fenced exclosure. Management would include closing the road and parking area, closing the ACEC to OHV and mechanized vehicle use, and excluding new ROWs or other realty use authorizations. The effects under these alternatives would be minimal use and development of the area thus maximizing human health and safety and restricting any use or access of the hot springs complex.

Alternatives D and E

The ACEC designation and management would be similar to Alternatives B and C except that opportunities for development would still exist. Use and access would still be restricted and human health and safety would be emphasized, but not to the same extent as Alternatives B and C.

Proposed Serrano Point RNA/ACEC

Alternative A

Current management would continue and the RNA/ACEC would not be designated. Therefore, this alternative would not result in any new or additional effects to natural resources or resource uses.

Alternatives B and E

The RNA/ACEC would not be designated. The management and effects would be exactly the same as under Alternative A with no specific protection of the special value plant communities.

Alternative C

The proposed RNA/ACEC would be designated as the Serrano Point RNA/ACEC covering 679 acres. Some additional management restrictions would be imposed including limiting OHV and mechanized vehicle use to designated routes and excluding new ROWs or other realty use authorizations except for access needs to nonpublic property. The area would also be withdrawn from locatable and leasable mineral entry and closed to saleable mineral removal and grazing. The effects would be minimal use and disturbance and maximum protection of the special value plant communities and associated resources.

Alternative D

The proposed RNA/ACEC would be designated as the Serrano Point RNA/ACEC covering 679 acres. Management under this alternative would not be as restrictive as Alternative C. However, it would result in increased protection of the unique plant communities and associated natural resources.

4.21.4 Summary of Effects

Under Alternative A, no new ACECs would be designated and existing ones, totaling 132,112 acres, would be retained. Under Alternatives B and E, all existing ACEC designations would be revoked and one new ACEC, Mickey Hot Springs, would be designated for a total of 42 acres. Management under Alternative B for the areas where ACEC designations were revoked would be the same as that applied across the Planning Area. Under Alternative C, all existing ACECs would be retained and seven proposed ACECs would be designated for a total of 143,426 acres. Under Alternative D, 12 of the existing ACECs would be retained while the designation on three of the existing ACECs (Alvord Peak, Pickett Rim and Steens Mountain) would be revoked and five new ACECs would be designated for a total of 66,870 acres. The various ACEC designations and acreages for each of the Alternatives would be listed in Table 2.10.

4.22 Wilderness

4.22.1 Goals and Objectives

Goal 1 - Maintain or improve the wilderness values and the special features of the Steens Mountain Wilderness under a principle of nondegradation and in a manner that would leave these values unimpaired for future use and enjoyment as wilderness, while providing opportunities for public use, enjoyment, and understanding.

Objective 1. Manage the wilderness to allow for areas of differing levels of resource use.

Objective 2. Provide for the level and type of commercial services necessary to enable the public to use, access, enjoy and understand the recreational and other values of wilderness, emphasizing opportunities for primitive and unconfined types of recreation, inspiration, and solitude.

Goal 2 - Manage the wilderness in such a manner that the landscape would be essentially unaffected by human manipulation and influences, while allowing natural processes to dominate.

Objective 1. Accomplish necessary projects and activities occurring in wilderness with the minimum tool or requirement needed to achieve a desired result. The chosen tool, equipment, or structure would be the one that least degrades wilderness values temporarily or permanently.

Goal 3 - Manage nonconforming uses of the Steens Mountain Wilderness, allowed under the Wilderness Act and the Steens Act, to have the minimum impact on wilderness characteristics.

Objective 1. Manage livestock grazing in wilderness under the stipulations of the Congressional Grazing Guidelines (HR 101-405 Appendix A).

Objective 2. Allow for a level of reasonable access for the use and enjoyment of private inholdings while protecting the wilderness values.

4.22.2 Assumptions

The Steens Act established the Steens Mountain Wilderness consisting of 170,084 acres of public lands. Subject to valid existing rights, the BLM would administer the Steens Mountain Wilderness in accordance with the provisions of the Wilderness Act, BLM Wilderness Regulations (43 CFR 6300), BLM Manual Handbook H-8560-1 Management of Designated Wilderness Areas, and the Steens Act.

Specific wilderness management provisions would be included in Section 202 of the Steens Act and would be discussed in Chapter 3.

Section 112(e)(1) of the Steens Act states that "The Secretary would provide reasonable access to nonfederally owned lands or interests in land within the boundaries of the Cooperative Management and Protection Area and the Wilderness Area to provide the owner of the land or interest the reasonable use thereof."

The road setbacks for wilderness boundaries would be described in Section 3.18 of this document.

Except for the designated No Livestock Grazing Area, grazing of livestock would continue and be administered in accordance with section 4(d)(4) of the Wilderness Act, the Steens Act, and the guidelines set forth in Appendix A of House Report 101-405 of the 101st Congress.

According to the Steens Act, no locatable mineral exploration and development activities would be authorized within the Steens Mountain Wilderness.

Except as specifically stated in the Wilderness Act, the following activities would be prohibited in wilderness (CFR 6302.20):

- Operate a commercial enterprise;
- Build temporary or permanent roads;
- Build aircraft landing strips, heliports, or helispots;
- Use motorized equipment; or motor vehicles, motorboats, or other forms of mechanical transport;
- Land aircraft, or drop or pick up any material, supplies or person by means of aircraft, including a helicopter, hang-glider, hot air balloon, parasail, or parachute;
- Build, install, or erect structures or installations, including transmission lines, motels, vacation homes, sheds, stores, resorts, organization camps, hunting and fishing lodges, electronic installations, and similar structures, other than tents, tarpaulins, temporary corrals, and similar devices for overnight camping;
- Cut trees;
- Enter or use wilderness areas without authorization, where the BLM requires authorization;
- Engage or participate in competitive use, including those activities involving physical endurance of a person or animal, foot races, watercraft races, survival exercises, war games, or other similar exercises; or
- Violate any BLM regulation, authorization, or order.

The Steens Act mandates that a Wilderness Plan be developed for the Steens Mountain Wilderness. A combined WSR/Wilderness Plan would be being prepared concurrently to this RMP/EIS and would not be finalized until after the Draft RMP/EIS has been circulated. All wilderness management actions would be analyzed under each alternative in this Draft RMP/EIS. The BLM would then select the preferred alternative from the RMP/EIS to develop management protocols for the final WSR/Wilderness Plan. Two years of monitoring data would be used to establish baseline conditions in the wilderness.

4.22.3 Analysis of Alternatives

4.22.3.1 Effects Common to All Alternatives

Potential indirect effects from social and economic values, livestock grazing, wildland fire management, realty use authorizations and ROWs, and recreation may occur under all of the alternatives. However, effects would be minimized due to the restrictions mandated by the Wilderness Act.

General indirect effects from the management actions of other resrources/uses have been summarized in this introduction. Specific indirect effects would be discussed under each alternative.

Social and Economic Values. Social and economic values, which promote use and visitation as emphasized in Alternative E and included in Alternatives A and D, would lead to increased use and would affect trails, campsite conditions, and solitude. This may affect recreational use and enjoyment of some areas. Restrictions on visitation under Alternatives B and C would potentially lead to an overall decline in visitation or to increased use and degradation of fewer areas.

Lands and Realty. Land use and realty management has minimal potential to affect wilderness because activities such as land acquisition, exchange, and disposal; use authorizations and withdrawals; and construction or location of roads for legal access would be constrained by the Wilderness Act. All of the alternatives for land use and realty specify that the Steens Mountain Wilderness would be Zone 1A, which calls for retention of the lands within the Steens Mountain Wilderness. Therefore, any potential effects from lands and realty would be similar across all of the alternatives.

4.22.3.2 Alternative A

Direct Effects

The entire wilderness would be managed as a single unit without 'management areas'. Management under this alternative would not restrict party size, dogs, human waste disposal, camping, or stock use. These activities and/or uses would affect the condition of the trails, campsites and surrounding areas, and affect wilderness characteristics such as naturalness and solitude. Present policy calls for no length-of-stay limitation that would result in increased visitation and use at any one time thus effecting solitude and causing additional primitive campsites to be created and used. Fourteen day length-of-stay and use by dogs and stock could create conflicts with wildlife, cattle, other visitors, or other uses. Minimal maintenance of trails and closures of others may provide protection and restoration of natural resources within the wilderness; nevertheless this may also lead to trail damage and increased use and degradation of a few more popular or more visible trails. Campfires would not be restricted under this alternative, which may increase wildland fire potential. Unrestricted campfire use may also lead to a proliferation of campfires, rock fire rings and damage to campsite areas such as expansion of the barren ground area, an increase in user-created trails and damage to vegetation. Monitoring of the Steens Mountain Wilderness would be conducted and management actions would be modified to achieve acceptable limits that would be set after a total of five years of gathering baseline information and continued monitoring. This would promote protection of the Steens Mountain Wilderness and wilderness values.

No new recreational facilities would be constructed in the wilderness or at trailheads under this alternative. Fire suppression and weed management would be conducted using appropriate management response and a full range of equipment following a minimum tool analysis. Historic structures would deteriorate through natural processes and maintenance would only be conducted on Nye Cabin to correct hazards. Effects to the wilderness from these activities would be limited, though allowing structures to deteriorate would lead to increased naturalness. There may be some unavoidable effects to naturalness or primitive recreational opportunities from weed eradication and fire suppression, but these activities would be temporary.

Livestock permittee grazing access would be managed in keeping with the Motorized Access for Grazing Operations in Wilderness EA and Decision Record.

New proposals would be considered for commercial services (e.g. outfitters), which could lead to increased use of the wilderness and affect trail and campsite conditions as well as solitude and naturalness. The potential effects would be increased because there would be no restrictions on party size or stock use under this alternative.

Inholder access would be managed in accordance with the decision record of the Access for Inholdings in the Steens Mountain Wilderness EA/Decision Record.

Indirect Effects

Woodlands. The increased likelihood of fires due to the increased tree density and cover could result in resource damage in burned areas. This could reduce the wilderness values.

Noxious Weeds. Treatments of large areas of noxious weed infestations could result in areas of limited or no vegetation, which in combination with recreational use could result in natural resource damage that reduces the wilderness values.

Wild Horses and Burros. Wild horse and burro use would continue under current management and no new or additional effects to the Steens Mountain Wilderness or to wilderness values would be anticipated. Effects of wild horse and burro use include resource degradation and possible user conflicts with recreationists.

Grazing Management. Livestock grazing would continue under current management objectives and no new or additional effects to the Steens Mountain Wilderness or to wilderness values would be anticipated. Effects of livestock grazing include resource degradation and possible user conflicts with recreationists.

Wildland Fire Management. Suppression of all wildfires would maximize protection of areas with important resource values such as the Steens Mountain Wilderness; however, continued suppression of all wildfires would allow fuels to accumulate throughout the Planning Area and wilderness values could be affected by increased fire potential due to a loss of natural processes. Native and desirable introduced plant species would be utilized in fire rehabilitation; this may also affect wilderness values by a change in the quality of naturalness.

Off-Highway Vehicles. OHV and mechanized vehicles would be allowed on several roads that would be bounded on one or both sides by the Steens Mountain Wilderness. Wilderness values of solitude and primitive and unconfined recreation could be affected by the presence and sounds of OHVs and mechanized vehicles on these roads.

Recreation. Continuing current recreation management would not directly increase use, but use of the Steens Mountain Wilderness would be expected to increase as the area receives more public notice. This increased use has the potential to affect wilderness values and conditions. Providing trail head parking near the mouth of Wildhorse Canyon would increase use in that portion of the wilderness and could affect wilderness values.

4.22.3.3 Alternative B

Direct Effects

The Steens Mountain Wilderness would be classified into two management areas; the Gorges and the Uplands. Management under this alternative would restrict party size (six people and nine head of stock); dogs would not be allowed; human waste and toilet paper would have to be packed out. Effects from these activities would lead to increased naturalness due to restrictions that would be imposed. Camping would not be allowed at Wildhorse Lake or in any RNA. Camping would only be allowed at existing established campsites. However, a three day length-of-stay would limit visitation and use at any one time, thus promoting solitude and naturalness and minimizing effects to campsites and trails. Stock use would be allowed at Wildhorse Lake or in any RNA on a limited basis; however, no pack stock grazing would be allowed, so any related effects to the wilderness would be minimized.

No trail maintenance or reclamation would be implemented unless a threat would be posed to life, property, or wilderness values. This may promote protection and rehabilitation of natural resources within the wilderness; nevertheless, little or no maintenance could lead to increased degradation of the trails and adjacent resources. Campfires would not be allowed, leading to an increase in naturalness and possibly decreasing wildland fire potential; however, wildland fire potential would be present even when campfires would not be allowed. Monitoring of the Steens Mountain Wilderness would be conducted and management actions would be modified to achieve acceptable limits. This would promote protection of the Steens Mountain Wilderness and wilderness values.

No new recreational facilities would be constructed in the wilderness or at trailheads. Historic structures would deteriorate through natural processes and no maintenance would be conducted on Nye Cabin. Wildland fire would be allowed to burn where no life or property would be at risk. No motorized equipment would be used to implement weed control measures. There may be some unavoidable effects to naturalness or primitive recreational opportunities from weed eradication and fire suppression, but these activities would be temporary and would provide long-term protection of wilderness characteristics.

Livestock grazing access in the wilderness would be limited because no mechanized or motorized equipment would be allowed for grazing operations. Also, no mechanized or motorized use would be allowed for inholder access. Although this may be a hardship on livestock operators, the trend of effects to the wilderness would be toward increased naturalness.

No commercial services (e.g. outfitters) would be allowed under this alternative, thereby limiting certain types of access and use. It would also decrease wilderness visitation and affect trail and campsite conditions as well as solitude and naturalness.

Indirect Effects

Woodlands. The increased likelihood of fires due to the increased tree density and cover could result in resource damage in burned areas. This could reduce the wilderness values.

Noxious Weeds. Treatments of large areas of noxious weed infestations could result in areas of limited or no vegetation, which in combination with recreational use could result in natural resource damage that reduces the wilderness values.

Wild Horses and Burros. Wild horse and burro use would be conducted under revised management and new or additional effects to the Steens Mountain Wilderness or to wilderness values would be anticipated. Effects of wild horse and burro use include resource degradation and possible user conflicts with recreationists.

Grazing Management. Livestock grazing would continue at a sustainable level, but must also be consistent with the Steens Act, allotment management objectives, and the S&Gs. In addition, rangeland projects would be minimized and some projects would be removed and rehabilitated. Relinquished permits would be discontinued.

Wildland Fire Management. Fires that directly threaten public safety, private property, or areas of significant resource values would be suppressed. Wilderness acres burned annually under this alternative could be greater than current levels. However, fire rehabilitation actions could be greater than Alternative A because of the reduced suppression activity and potentially larger fire size. Only native plant species would be utilized for rehabilitation purposes; burn areas may be allowed to recover naturally, which would not affect wilderness values.

Off-Highway Vehicles. OHV and mechanized vehicles would not be allowed on eight roads that would be bounded on one or both sides by the Steens Mountain Wilderness. Wilderness values of solitude and primitive and unconfined recreation would be enhanced by the absence of motorized vehicles, OHVs, and mechanized vehicles from these roads.

Recreation. Closure of the Steens Loop Road from the Kiger Overlook Road to west of Blitzen Crossing would change recreation use patterns in the Steens Mountain Wilderness. Use of Wildhorse Lake, Big and Little Indian, and the Ankle Creek basin would decrease because of the increased hiking distance. Use of the main stem of the Blitzen River (from Page Springs to Blitzen Crossing), Little Blitzen, and Kiger Gorge would be expected to increase because of the proximity of these areas to open roads. This use pattern change would result in corresponding changes in trail and camp site conditions and effects to wilderness values.

4.22.3.4 Alternative C

Direct Effects

The Steens Mountain Wilderness would be classified into two management areas; the Gorges and the Uplands. Management under this alternative would restrict party size (nine people and twelve head of stock); dogs would be allowed but must be under control; catholes would be required for human waste and toilet paper would have to be packed out. No camping would be allowed at Wildhorse Lake or at any RNA. This alternative would have more potential effects than Alternative B; however, the restrictions under this alternative result in fewer effects to and greater protection of the wilderness than under Alternative A. A five day length-of-stay would have similar effects as Alternative B. Stock use at Wildhorse Lake or at any RNA would be the same as Alternative B; therefore, the effects would be the same.

Minimal trail maintenance would be conducted on Little Blitzen, Big Indian, and Wildhorse Lake trails but no new trails would be constructed. Inappropriate user trails as well as selected roads would be reclaimed. Other closed roads would be left for use as informal stock and hiking routes. These activities would promote protection and rehabilitation of natural resources and wilderness values within the wilderness while providing greater access than Alternative B. Monitoring

of the Steens Mountain Wilderness would be conducted and management actions would be modified to achieve acceptable limits. This would promote protection of the Steens Mountain Wilderness and wilderness values.

No new recreational facilities would be constructed in the wilderness. Facilities could be constructed at trailheads if resource damage and/or hazards exist. All other facilities, except historic structures and those used for livestock grazing, would be removed. Historic structures would deteriorate through natural processes and limited maintenance would be conducted on Nye Cabin to correct hazards. The Page Springs weir would be removed. Wildland fire would be allowed to play its natural role. Prescribed fire would be utilized and noxious weed control would be conducted using nonmotorized equipment after a minimum tool analysis. Effects to the wilderness from these activities would be greater than those under Alternative B and may include additional disturbance to the wilderness, affecting wilderness characteristics such as solitude, naturalness, and primitive recreational opportunities. Nevertheless, these activities would be temporary and would provide long-term protection of these wilderness characteristics while promoting natural processes. In the long term, wilderness values, and the wilderness experience may be enhanced by management under this alternative.

Livestock permittee grazing access would have the same effects as Alternative A.

Commercial services (e.g. outfitters), would be allowed at current levels but no permanent caches would be allowed. Under this alternative, opportunities for access and use would be greater than under Alternative B but less than the other alternatives, which would consider new proposals. This alternative would protect resources and wilderness values and promote natural processes while allowing continued use and access.

Inholder access would have the same effects as Alternative A.

Indirect Effects

Woodlands. The reduced likelihood of fires due to the decrease in tree density and cover could minimize the potential for resource damage in burned areas.

Noxious Weeds. Effects from noxious weeds under this alternative would be similar to Alternative B.

Wild Horses and Burros. Effects from wild horses and burros under this alternative would be similar to Alternative B.

Grazing Management. Effects from livestock grazing under this alternative would be similar to Alternative B.

Wildland Fire Management. Effects to the Steens Mountain Wilderness from wildland fire management would be similar to those under Alternative B.

Off-Highway Vehicles. OHV and mechanized vehicles would not be allowed on three roads that would be bounded on one or both sides by the Steens Mountain Wilderness. Wilderness values of solitude and primitive and unconfined recreation would be enhanced by the absence of OHVs and mechanized vehicles from these roads.

Recreation. Closure of the Rooster Comb section of the Steens Loop Road and other roads would not affect recreation use patterns in the Steens Mountain Wilderness. Trail development, where needed to protect natural values, could slightly reduce use in the Steens Mountain Wilderness by providing alternate trails for hikers. Development of a trail head facility for horse users would increase horse use in the wilderness with the associated effects. Development of a staging area near the mouth of Wildhorse Canyon could increase use in that portion of the wilderness and could affect wilderness values and conditions.

4.22.3.5 Alternative D

Direct Effects

The Steens Mountain Wilderness would be classified into two management areas; the Gorges and the Uplands. Management under this alternative would restrict party size (twelve people and fifteen head of stock) with exceptions for historic use on a case-by-case basis, subject to NEPA review; dogs would be allowed but must be under control; catholes would be required for human waste; and toilet paper would have to be packed out. No camping would be allowed at Little Wildhorse. Limited stock use would be allowed at Wildhorse Lake and in the RNAs. Overnight camping would be allowed at Wildhorse Lake but only as designated campsites, with no overnight stock use allowed.

Camping would be allowed in Little Blitzen and Rooster Comb RNAs in historic use areas. There would be no tying of stock to trees overnight. Stock picketed, highlined or tethered must be at least 100 feet from water sources. Grazing of pack stock would be allowed consistent with S&Gs for grazing management. There would be more potential effects from this alternative than Alternatives B or C; however, the restrictions under this alternative would result in less effects to and greater protection of the wilderness than under Alternative A. A five day length-of-stay would be recommended and would have similar effects as Alternatives B and C.

Minimal trail maintenance would be conducted on Little Blitzen, Big Indian, and Wildhorse Lake trails and new trails could possibly be constructed where appropriate as use increases. Selected closed roads would be reclaimed and others would be left for use as informal stock and hiking routes. These activities provide increased access over Alternatives A, B and C; nevertheless, as maintenance increases, effects on the wilderness and to wilderness values would increase. Monitoring of the Steens Mountain Wilderness would be conducted and management actions would be modified to achieve acceptable limits. This would promote protection of the Steens Mountain Wilderness and wilderness values.

Recreation facilities would be constructed at trailheads as needed to prevent resource damage. Historic structures would be maintained to preserve them. Nonconforming structures, except those used for livestock or wildlife, would be removed or allowed to deteriorate. Nye Cabin would be maintained to provide a safe and hazard-free environment and for historic characteristics. The Page Springs weir could be removed or modified. Wildland fire would be allowed to play its natural role. Prescribed fire could be utilized and noxious weed control would be conducted using a full array of equipment after a minimum tool analysis. Effects to the wilderness from these activities would be similar to Alternative C and greater than those under Alternative B. Disturbance to the wilderness and effects on wilderness characteristics such as solitude, naturalness and primitive recreational opportunities could be expected. Nevertheless, these activities would be temporary and would provide long-term protection of these wilderness characteristics while promoting a balance between resource protection and use.

Livestock grazing access would have the same effects as Alternative A.

New proposals for outfitters would be considered after preparing a needs assessment and no permanent caches would be allowed. Under this alternative, opportunities for access and use would be greater than under Alternatives B and C, but less than Alternative A.

Inholder access would have the same effects as Alternative A.

Indirect Effects

Woodlands. Effects from woodlands under this alternative would be similar to Alternative C.

Noxious Weeds. Treatments of large areas of noxious weed infestations could result in areas of limited or no vegetation, which in combination with recreational use could result in natural resource damage that reduces the wilderness values.

Wild Horses and Burros. Wild horse and burro use would be conducted under management similar to Alternative B and some new or additional effects to the Steens Mountain Wilderness or to wilderness values would be anticipated. Effects of wild horse and burro use include resource degradation and possible user conflicts with recreationists.

Grazing Management. Livestock grazing under this alternative would be similar to Alternative A, but with more emphasis on natural resources and with a provision to discontinue permits in areas where resource conflicts exist. The result of this management would be greater protection of the wilderness values and fewer user conflicts than under Alternative A.

Wildland Fire Management. Fire would be reintroduced into the ecosystem through prescribed fire and wildland fire use. A combination of native and desirable introduced plants would be used for rehabilitation. These activities would result in the same effects to the Steens Mountain Wilderness as under Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicles would be allowed on several roads that would be bounded on one or both sides by the Steens Mountain Wilderness. Wilderness values of solitude and primitive and unconfined recreation would be affected by the presence and sounds of OHVs and mechanized vehicles on these roads.

Recreation. Trail development, where needed to protect natural resources and for public health and safety, could reduce use in the Steens Mountain Wilderness by providing alternate trails for hikers. Development of a trail head facility for horse users would increase horse use in the wilderness with the associated effects. Development of a staging area near the mouth of Wildhorse Canyon could increase use in that portion of the wilderness, possibly affecting wilderness values and conditions.

4.22.3.6 Alternative E

Direct Effects

The entire Steens Mountain Wilderness would be managed as a single unit without 'management areas.' Management under this alternative would not restrict or limit party size and it would not restrict dogs, human waste disposal, camping, or stock use. These activities and/or uses would affect the condition of the trails, campsites, and surrounding areas. Wilderness characteristics such as naturalness and solitude would also be affected. In addition, a fourteen day length-of-stay and self-registration that would be only encouraged rather than required would result in increased visitation and use at any one time, thus affecting solitude and causing additional primitive campsites to be created. Increased visitation and unrestricted use by dogs and stock could create conflicts with wildlife, cattle, visitors, or other uses.

Minimal trail maintenance would be conducted on Little Blitzen, Big Indian, and Wildhorse Lake trails and new trails would be constructed where appropriate as use increases. Selected closed roads would be reclaimed and others would be left for use as informal stock and hiking routes. These activities provide increased access over Alternatives A, B and C; nevertheless, as maintenance and construction increase, effects on the wilderness and to wilderness values increase. Monitoring of the Steens Mountain Wilderness would be conducted and management actions would be modified to achieve acceptable limits. Although monitoring and maintaining acceptable levels would promote protection of the Steens Mountain Wilderness and wilderness values, this alternative would have the greatest effects on the Steens Mountain Wilderness and wilderness values of all the alternatives. Wilderness degradation, and decreased solitude, naturalness, and primitive experiences would result.

Recreation facilities would be constructed at trailheads as needed to prevent resource damage. Historic structures would be maintained to preserve them. Nonconforming structures, except those used for livestock or wildlife, would be removed or allowed to deteriorate. Nye Cabin would be managed as a rental cabin. The Page Springs gauging weir would be removed. Fire suppression and weed management would be conducted using appropriate management response and a full range of equipment following a minimum tool analysis. Effects to the wilderness from these activities would be greater than under all of the other alternatives. Permanent effects from increased facilities and access would affect the use levels and thus the characteristics of solitude, primitive recreational opportunities, and naturalness. There may also be some unavoidable effects to naturalness or primitive recreational opportunities from weed eradication and fire suppression, but these activities would be temporary and would provide long-term protection of these wilderness characteristics.

Motorized or mechanized use would be allowed at historic levels for livestock permittee grazing access. The level of use allowed to occur under this alternative would be the greatest of the alternatives, and may include resource degradation; and decreases in solitude, naturalness, and primitive recreational opportunities; and conflicts with other uses.

Commercial activities would be managed the same as Alternative D; therefore, the effects would be the same as under Alternative D.

Motorized or mechanized use would be allowed at historic or higher levels for inholder access. The level of use allowed to occur under this alternative would be the greatest of the alternatives and may include resource degradation, decreases in solitude, naturalness, and primitive recreational opportunities; and conflicts with other uses.

Indirect Effects

Woodlands. Effects from woodlands under this alternative would be similar to Alternative A.

Noxious Weeds. Effects from noxious weeds under this alternative would be similar to Alternative D.

Wild Horses and Burros. Effects from wild horses and burros under this alternative would be similar to Alternative D.

Grazing Management. Effects from grazing management under this alternative would be similar to Alternative D.

Wildland Fire Management. Effects from wildland fire management under this alternative would be similar to Alternative D.

Off-Highway Vehicles. OHV and mechanized vehicles would be allowed on several roads that would be bounded on one or both sides by the Steens Mountain Wilderness. Wilderness values of solitude and primitive and unconfined recreation would be affected by the presence and sounds of OHVs and mechanized vehicles on these roads.

Recreation. Encouraging public use through expanding and establishing recreation sites to meet increasing demand would encourage additional use in the Steens Mountain Wilderness. This increased use has the potential to affect wilderness values and conditions. Trail development could reduce use in the Steens Mountain Wilderness by providing alternate trails for hikers. Development of a staging area with horse support facilities near the mouth of Wildhorse Canyon would increase use in that portion of the wilderness and could affect wilderness values.

4.22.4 Summary of Effects

Alternative B would provide the most protection of the Steens Mountain Wilderness and wilderness values such as naturalness, solitude, and primitive recreational opportunities; however, use and access would be very restrictive and may affect a recreationist's ability to visit the wilderness. Livestock grazing under this alternative would have even less effect on the Steens Mountain Wilderness or wilderness values than Alternative A. Alternatives A and E would provide the highest level of access and use but would limit protection of the wilderness and may lead to a decrease in wilderness values such as naturalness and solitude. Alternatives C and D provide balanced management that would protect the wilderness while allowing reasonable levels of access and use. Alternative C would be more restrictive than Alternative D, with focus on promoting natural processes; It would therefore have more effects on certain types of users (e.g. outfitters, livestock operators, inholders).

Social and Economic Values. Social and economic values, which promote use and visitation as emphasized in Alternative E and included in Alternatives A and D, would lead to increased use and would affect trails, campsite conditions, and solitude. This may affect recreational use and enjoyment of some areas. Restrictions on visitation under Alternatives B and C would potentially lead to an overall decline in visitation or to increased use and degradation of fewer areas.

4.22.5 Cumulative Effects

Prior to the implementation of the Steens Act, the area that is now the Steens Mountain Wilderness was used for a variety of activities that are not now permitted in all or part of the wilderness, such as grazing and motor vehicle travel on the existing roads. Motor Vehicle travel on existing roads by the general public would not be permitted in wilderness. The impacts from these now-curtailed uses would diminish over time and there would be a general improvement in the wilderness values under all alternatives.

Alternative A would result in continuing the slow process of overall improvement to the wilderness values.

Alternative B would result in improvement in the wilderness values; however, the improvement could be slowed because of the limited nature of management under this alternative. Alternative C would provide the most improvement in the wilderness values in the shortest period of time. Alternative D would emphasize more use, while providing for an improvement in the wilderness values. Alternative E would result in continuing the slow process of overall improvement to the wilderness values.

4.23 Wilderness Study Areas

4.23.1 Goals and Objectives

Goal - Manage WSAs and WSA additions so as not to impair their suitability for preservation as wilderness.

Objective 1. Manage lands identified as additions to existing WSAs or any new areas found to be suitable for WSA designation, so as not to impair their suitability for preservation as wilderness.

Objective 2. Manage existing WSAs so as not to impair their suitability for preservation as wilderness.

4.23.2 Assumptions

The existing WSAs, which total 633,519 acres, would continue to be managed under the WSA IMP, FLPMA, and other applicable laws and policies until designated as wilderness by Congress or released from WSA status. Management of existing WSAs in the CMPA would continue as directed under the WSA IMP, the Steens Act, and FLPMA.

The WSA IMP takes precedence over all other management direction unless the other management direction would be more restrictive than the WSA IMP, in which case the more restrictive management would be followed.

According to the WSA IMP, the use of "mechanical transport, including all motorized devices as well as trail and mountain bikes, may only be allowed on existing ways and within open areas that were designated prior to the passage of the FLPMA (October 1976)". Existing ways are those that existed at the time of the wilderness inventory.

4.23.3 Analysis of Alternatives

4.23.3.1 Effects Common to All Alternatives

Potential indirect effects from vegetation management, energy and minerals, livestock grazing, wildland fire management, realty use authorizations and ROWs, transportation, OHVs, and mechanized vehicle use and recreation may occur under all alternatives. However, effects would be minimized due to the restrictions mandated by the WSA IMP, which states that activities must meet the following nonimpairmment criteria:

1. The use, facility, or activity must be temporary. This means a temporary use that does not create surface disturbance or involve permanent placement of facilities may be allowed if such use can easily and immediately be terminated upon wilderness designation.

2. When the use, activity, or facility would be terminated, the wilderness values must not have been degraded so far as to significantly constrain the Congress' prerogative regarding the area's suitability for preservation as wilderness.

Exceptions to the above include the following: emergencies such as fire suppression and search and rescue operations; reclamation of effects from WSA IMP violations, emergencies and pre FLPMA impacts; grandfathered uses or facilities, or valid existing rights; or uses and facilities that clearly protect or enhance the land's wilderness values or that would be the minimum necessary for public health and safety in the use and enjoyment of wilderness values.

General indirect effects from the management actions of other resources/uses have been summarized in this introduction. Specific indirect effects would be discussed under each alternative.

Vegetation. Vegetation management could have indirect effects to WSAs. Activities such as habitat restoration and weed control could affect the wilderness value of naturalness. However, these effects would be temporary, in keeping with the nonimpairment criteria of the WSA IMP. Overall, the effects from vegetation management would be minimal and would be similar throughout all alternatives.

Land Use and Realty. Land use and realty management has little potential to affect WSAs because activities such as land exchange and disposal; use authorizations and withdrawals; and construction or location of roads for legal access would be constrained by WSA designation. All alternatives for land use and realty specify that WSAs would be either Zone 1, Zone 1A, or Zone 1B, which all call for retention of lands within WSAs. Therefore, any potential effects from lands and realty would be the same across all alternatives.

4.23.3.2 Alternative A

Direct Effects

The current WSA designations and management under the WSA IMP and the Steens Act would continue. This would not result in any new or additional effects to the existing WSAs and their identified wilderness values. The acquired parcels in the Mahogany Ridge and Bridge Creek WSAs would not be incorporated into those WSAs; however, the wilderness values of these parcels would not be affected because of their locations.

Indirect Effects

Grazing Management. The current livestock grazing management would continue under this alternative and it would not result in any new or additional effects to WSAs.

Wildland Fire Management. In the short term, suppression of all wildfires would maximize protection of areas with important resource values such as WSAs. However, continued suppression of all wildfires would allow fuels to accumulate throughout the Planning Area and could compromise due to the accumulation of fuels and increased fire potential. Native and desirable introduced plant species would be used in fire rehabilitation, which could affect the wilderness value of naturalness and the WSAs' potential as wilderness.

Off-Highway Vehicles. OHV and mechanized vehicle use in WSAs would be limited to existing designated roads, ways, and trails; the cherrystem roads and ways would be available for use in the WSAs. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be affected by the presence, tracks, and sounds of OHVs and mechanized vehicles both legally and in trespass. However, with any indication that degradation would be occurring or that wilderness values may be compromised, the OHV and mechanized vehicle use designations would be reviewed and adjusted as necessary.

Recreation. Continuing current recreation management would not directly increase use, but use of the Planning Area WSAs would be expected to increase as the area receives more public notice. This increased use has the potential to affect WSAs and their wilderness values.

4.23.3.3 Alternative B

Direct Effects

Three parcels within the Mahogany Ridge WSA (totaling approximately 318 acres), acquired through a land exchange, would be incorporated into that WSA. In addition, a 40-acre parcel adjacent to the Bridge Creek WSA would be incorporated into that WSA. Incorporating these parcels into the existing WSAs would protect the wilderness characteristics and values in these areas.

Indirect Effects

Grazing Management. Livestock grazing would be eliminated in the AMU and no range improvements would be developed. Grazing would continue in the CMPA and range improvements would be allowed, if in conformance with the Wilderness Management Plan, the WSA IMP, and the Steens Act. The CMPA WSAs may therefore be affected by continued grazing.

Wildland Fire Management. Fires that directly threaten public safety, private property, or areas of significant resource values would be suppressed. WSA acres burned annually could increase. However, fire rehabilitation actions could be than Alternative A because of the reduced suppression activity and potentially larger fire size. Only native plant species would be used for rehabilitation purposes, which would not impair wilderness suitability.

Off-Highway Vehicles. The WSAs would be designated as closed to OHV and mechanized vehicle use so wilderness values would not be affected.

Recreation. Closure of many roads in the CMPA and elsewhere would displace many users to adjacent and nearby WSAs. This, combined with the designation of WSAs as closed to OHV and mechanized vehicle use, would result in heavier vehicle use of boundary roads, development of additional dispersed camping sites adjacent to boundary roads, and effects to wilderness values. Closing or rehabilitating sites where natural processes were jeopardized would help restore naturalness in the WSAs.

4.23.3.4 Alternative C

Direct Effects

Three parcels within the Mahogany Ridge WSA (totaling approximately 318 acres), acquired through a land exchange, would be incorporated into that WSA. In addition, a 40-acre parcel adjacent to the Bridge Creek WSA would be

incorporated into that WSA. Incorporating these parcels into the existing WSAs would protect the wilderness characteristics and values in these areas.

The wilderness values of four parcels would be protected through maintenance of the visual resources and limiting OHV and mechanized vehicle use. Any proposed activity in these parcels would be evaluated on a case-by-case basis.

Indirect Effects

Grazing Management. Livestock grazing would continue at sustainable levels in the AMU and CMPA and range improvements could be developed, if in conformance with the WSA IMP.

Wildland Fire Management. Effects to WSAs from wildland fire management would be the same as Alternative B.

Off-Highway Vehicles. OHV and mechanized vehicle use would be minimized under this alternative with the WSAs designated as limited to designated ways, and trails. Wilderness values of naturalness, solitude, and primitive and unconfined recreation could be affected by the presence, tracks, and sounds of OHVs and mechanized vehicles both legally and in trespass.

Recreation. Closure of roads in the CMPA could displace some users to adjacent and nearby WSAs. This would result in heavier vehicle use of ways and cherrystem roads, development of additional dispersed camping sites, and effects to the wilderness values of solitude and naturalness. Closing or rehabilitating sites where natural processes would be jeopardized would help restore naturalness in the WSAs.

4.23.3.5 Alternative D

Direct Effects

The direct effects from this alternative would be the same as Alternative B.

Indirect Effects

Grazing Management. The effects to WSAs from livestock grazing under this alternative would be the same as Alternative C.

Wildland Fire Management. Fire would be reintroduced into the ecosystem through prescribed fire and wildland fire use. A combination of native and desirable introduced plants would be used for rehabilitation. These activities would result in the same effects to WSAs as Alternative A.

Off-Highway Vehicles. OHV and mechanized vehicle use in the WSAs would be limited to designated roads, ways, and trails. Cherrystem roads would be available for use. The effects to WSAs would be the same as Alternative C.

Recreation. Roads in the CMPA would not be closed, so recreationists would not be displaced. Overall recreation use would affect WSAs and wilderness values through more vehicle use of ways and cherrystem roads, continued use of existing dispersed sites, and development of new dispersed sites. Development of recreation facilities near WSAs would increase use in those areas, possibly affecting wilderness values.

4.23.3.6 Alternative E

Direct Effects

The direct effects from this alternative would be the same as Alternative B.

Indirect Effects

Grazing Management. Livestock grazing and range improvements would be maximized throughout the Planning Area and would affect wilderness values in the WSAs the most. Nevertheless, the WSA IMP must still be followed for any proposed range development in the WSAs.

Wildland Fire Management. Wildland fire management would result in the same effects to WSAs as Alternative A.

Off-Highway Vehicles. CMPA WSAs would be designated as limited to designated roads, ways, and trails. AMU WSAs would be designated as limited to existing roads, ways and trails. This would allow the greatest amount of use and could result in the greatest effects to the WSAs. Wilderness values of naturalness, solitude, and primitive and unconfined recreation would be affected by the presence, tracks, and sounds of OHVs and mechanized vehicles both legally and in trespass. With any indication that degradation would be occurring or that wilderness values may be compromised, the OHV and mechanized vehicle use designations would be reviewed and adjusted as necessary.

Recreation. Roads in the CMPA would not be closed, so recreationists would not be displaced. Overall increased recreation use would affect WSAs and wilderness values through more vehicle use of ways and cherrystem roads, heavier use of existing dispersed sites, and development of new dispersed sites. Development of recreation facilities near WSAs would increase use in those areas, possibly affecting wilderness values.

4.23.4 Summary of Effects

Alternative A would protect wilderness values in the existing WSAs at the current level. Alternatives B through E would protect wilderness values in the existing WSAs as well as the acquired lands that would be added to the WSAs. Protection would be greatest under Alternative B, which has the most restrictions on use. The level of protection decreases from Alternatives B through E. Alternative E would promote the maximum use and visitation allowed and would provide the least protection of wilderness values. Nevertheless, all uses and/or activities must meet the WSA IMP nonimpairment criteria; therefore, the level of effects from all alternatives would be limited.

4.23.5 Cumulative Effects

The addition of acquired lands to the existing WSAs, as proposed in Alternatives B through E, would protect wilderness characteristics and values. Management of existing WSAs and any WSA additions would be guided by the WSA IMP.

4.24 Wild and Scenic Rivers

4.24.1 Goals and Objectives

Goal 1 - Manage the existing and newly designated WSRs in conformance with the WSR Act and the Wilderness Act.

Objective 1. Protect and enhance the ORVs of the designated WSRs.

Goal 2 - Determine the suitability of eligible WSRs. Manage those rivers found suitable in conformance with BLM Manual 8351 (Wild and Scenic Rivers - Policy and Program Direction for Identification, Evaluation, and Management) for protective management of eligible and suitable WSRs.

Objective 1. Protect and enhance the ORVs of rivers determined by Congress to be administratively suitable for potential inclusion in the National WSR system.

4.24.2 Assumptions

Nearly all existing WSRs are within the wilderness boundary. In the case of conflict with the provisions of both the Wilderness Act and WSR Act the more restrictive provisions would apply. Wilderness or WSAs are managed for nondegradation,, which would protect many ORVs in areas under this type of management. WSRs are managed to protect (nondegradation) and enhance ORVs and could in some instances be more restrictive on implementing certain management actions, which may enhance the ORVs beyond those under management of just the Wilderness Act only. Protection of beneficial uses in streams listed on the 303(d) list would protect ORVs in these areas that are dependent on riparian habitat, such as fish and wildlife habitat or riparian plants. Management in the No Livestock Grazing Area would also protect ORVs associated with upland and riparian vegetation, such as fish and wildlife habitat, or upland and riparian plants. Since there are no valid existing rights or grandfathered rights for minerals activities in the existing WSRs, no locatable, leasable or saleable mineral exploration or development activities are authorized.

4.24.3 Analysis of Alternatives

4.24.3.1 Effects Common to All Alternatives

Direct Effects

An integrated WSR/Wilderness Management Plan would be developed for all WSRs in the CMPA and the Steens Mountain Wilderness. The primary objective of this management plan would be to protect and enhance the ORVs of WSRs in the CMPA and the Steens Mountain Wilderness.

4.24.3.2 Alternative A

Direct Effects

All rivers currently eligible for inclusion in the WSR system would continue to be managed in conformance with BLM Manual 8351 for protective management of eligible WSRs. The identified ORVs for each eligible river would be afforded adequate protection, subject to valid existing rights, and until the eligibility determination would be superseded, management activities and authorized uses would not be allowed to adversely affect either eligibility or the tentative classification. This may include restrictions on grazing management, recreational use, and mineral or energy development.

Indirect Effects

For indirect effects discussions refer to Chapter 4, Indirect Effects under the Wilderness and Recreation headings.

4.24.3.3 Alternative B

Direct Effects

No eligible rivers would be recommended by Congress as administratively suitable for potential designation as WSRs. These rivers would be managed in accordance with RMP management objectives instead of in conformance with BLM Manual 8351 for protective management of eligible WSRs. Prior to the Steens Act, administrative suitability was analyzed for all of these streams, and all were found not suitable (Appendix N). For some of the streams, ownership patterns would not allow for effective management as WSRs. In other cases, fish and wildlife habitat, vegetation, or scenic ORVs were found to be protected by BLM management at the time of the suitability determination, such as ACECs or RNAs, or WSAs, or protection of federally listed aquatic species or species of special concern.

Since the suitability determinations, the passage of the Steens Act resulted in additional management requirements for many of the rivers. Most eligible rivers would be at least partially within the CMPA and the No Livestock Grazing Area, the mineral withdrawal area, the Steens Mountain Wilderness, or WSAs. Also, several of the rivers have been listed on the 303(d) list for summer water temperature, and would be subject to WQRPs. These management requirements would provide additional protection for ORVs, especially those associated with riparian and upland vegetation or fish and wildlife habitat.

Indirect Effects

For indirect effects discussions refer to Chapter 4, Indirect Effects under the Wilderness and Recreation headings.

4.24.3.4 Alternative C

Direct Effects

All eligible rivers would be recommended by Congress as administratively suitable for potential designation as WSRs. All rivers found suitable for inclusion in the WSR system would be managed in conformance with BLM Manual 8351 as if it were a designated WSR until Congress acts on whether or not to add these rivers to the National WSR system. All suitable rivers would be administered in such a manner as to protect and enhance their ORVs. This may include restrictions on grazing management, recreational use, and mineral or energy development within the river corridor boundary.

Indirect Effects

For indirect effects discussions refer to Chapter 4, Indirect Effects under the Wilderness and Recreation headings.

4.24.3.5 Alternative D

Direct Effects

Under this alternative, a recommendation to Congress would be made to reclassify the Riddle Brothers Ranch Historic District, and the Page Springs and Jackman Park campgrounds from wild to recreational, and change the classification of the Blitzen Crossing to scenic. Changing the classification would be unlikely to affect ORVs identified for the Donner und Blitzen River, and may possibly increase protective management and correct safety concerns, such as installing a accessible toilet to contain human waste, etc. The Riddle Brothers Ranch Historic District, Page Springs Campground, and the Blitzen Crossing areas are all within the No Livestock Grazing Area, which would restrict or curtail activities that could affect ORVs in these areas. All of the streams listed in these areas would be on the 303(d) list for summer water temperature. WQRPs would be developed, promoting protection of ORVs associated with riparian and upland vegetation, and fish and wildlife habitat.

As in Alternative B, no eligible rivers would be recommended as administratively suitable for potential designation as WSRs by Congress, with the same effects.

Indirect Effects

For indirect effects discussions refer to Chapter 4, Indirect Effects under the Wilderness and Recreation headings.

4.24.3.6 Alternative E

Direct Effects

As in Alternative D, the wild classification of the Riddle Brothers Ranch Historic District, and the Page Springs and Jackman Park campgrounds would be recommended to Congress to be changed to recreational, and the Blitzen Crossing changed to scenic, with the same effects.

As in Alternatives B and D, no eligible rivers would be recommended as administratively suitable for potential designation as WSRs by Congress, with the same effects.

Indirect Effects

For indirect effects discussions refer to Chapter 4, Indirect Effects under the Wilderness and Recreation headings.

4.24.4 Summary of Effects

Under Alternatives D and E, the wild classifications of some locations within the Donner und Blitzen WSR would be recommended to Congress to be changed to recreational or scenic. These areas currently contain some level of development, but additional activities that could affect ORVs would be unlikely due to other management requirements in these areas, such as the Steens Mountain Wilderness, WSAs, the No Livestock Grazing Area, the mineral withdrawal area, or water quality limitations.

Under Alternative C, eligible rivers would be recommended to Congress as administratively suitable for potential designation as WSRs. All rivers found suitable for inclusion in the WSR system would be managed in conformance with BLM Manual 8351 as if it were a designated WSR until Congress acts on whether or not to add these rivers into the National WSR system. All suitable rivers would be administered in such a manner as to protect and enhance their ORVs. This action may include restrictions on grazing management, recreational use, and mineral or energy development within the river corridor boundary.

4.24.5 Cumulative Effects

Past management practices, such as intensive livestock grazing, mineral exploration, or water development, have affected water quality, fish and wildlife habitat, or other ORVs in WSRs. Increasing BLM management emphasis on PFC in riparian communities, and improved watershed and ecological function in range and upland communities has promoted the maintenance and restoration of habitat, thereby protecting ORVs. Recent land management emphasis such as wilderness or WSAs, especially since the passage of the Steens Act, and requirements of water quality protection further promote maintenance and restoration of both riparian and upland vegetation communities and habitat throughout designated and eligible WSRs, resulting in substantial future protection for ORVs.

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